# Textile World

*The World's Textile Authority*

# INDEX

## To VOLUME 86

*January to December, 1936*

BRAGDON, LORD & NAGLE COMPANY
Division of McGraw-Hill Publishing Co., Inc.
330 West 42nd St., New York

✓ 670.5 V. 86



# General Alphabetical Index

PAGES BY ISSUES


January ..... 55– 122
February 14 ..... 223– 288
February 28 ..... 409– 484
March ..... 631– 698
April ..... 845– 914
May ..... 1049–1116
June ..... 1245–1312
July ..... 1433–1500
August ..... 1609–1676
September ..... 1801–1890
October ..... 2071–2138
November ..... 2287–2356
December ..... 2493–2560


## A


Accounting—Lot chasing system. Phillip Dodge ..... 862

**Air Conditioning**

Cotton mill improves yarn strength with adequate humidity. A. W. Thompson ..... 1266
Engineering advances in 1935..... 480
Hosiery windowless mill air conditioned. 2089
Humidity requirements for rayon and acetate. J. L. Bitter..... 246
Hygrometer and psychrometer readings on relative humidity. R. H. Brown..1637
Rayon's air conditioning advance.....1846
Throwing plant conditions.....1655
American Assn. of Textile Chemists & Colorists—Chatanooga meeting ..... 70
Providence meeting .....2524
American Cotton Manufacturers Assn.—Board of Government meets at Charlotte .....1253
Pinehurst convention .....1054
American Society for Testing Materials—Committee D-13 meets..... 855
D-13 begins new year.....1638
D-13 Committee meets at three-day session .....2299


## B


Battle, Hyman L.....1447

**Bleaching**

Appleton builds new bleachery.....2328
Lanett Bleachery enlarges plant.....2328
Lanett Mill short cuts..... 675
Proximity Mf'g. revamps print works and bleachery .....2324
Rock Hill adds new buildings.....2328
Union Bleachery's new filtration plant..2326


## C


Carpets and rugs—Novelties in carpet weaves. C. F. Harleston..... 652
Spray printing of carpets..... 890
Carolina yarn golf tourney at Pinehurst..2530

**Codes**

A.C.M.A. campaigns for cade compliance .....1436
Code standards held reports Sloan.....1251
Cotton Manufacturers Assn. of Georgia recommended code standards.....1252
Robert Report on post-NRA adherence to code standards (ed)..... 847
Color—Fugitive tints now aid knitter and weaver. I. G. Sanford..... 879
Harmony in color. Faber Birren..... 257

**Costs**

Going South? re-location no automatic solution ..... 867
Hosiery mill saves $49,000 a year by standard cost system. F. R. Fletcher 872
Profit pilfering in the power house. N. T. Pef.....1457

**Cotton**

History of cotton in 1935..... 443
1935 cotton and cotton textile prices and activity ..... 444
Raw cotton and its relations to spinning problems considered at S.T.A. Gaston County meeting.....2540
What is cotton? research at Boyce Thompson Institute ..... 74
Year ahead in cotton. A. H. Garside.. 445
Cotton Manufacturers Assn. of Georgia.—Savannah meeting .....1252
Cotton Manufacturers Association of North Carolina—Pinehurst meeting...2502
Cotton Manufacturers Assn. of South Carolina—Cashiers, N. C. meeting....1253

**Cotton Manufacturing**

A.C.M.A. convention at Pinehurst.....1054
Amoskeag Industries purchases mills..1805
Amoskeag's last mile?.....1618
Average twist multiplier.....2537
Balbriggan finishing ..... 889
Bobbins, faulty roving.....1093
Bonus system for workers cuts dyeing costs. S. A. Weart.....2318
British spindles bill status..... 636
Bulkier picker laps are evener. Richard White ..... 646
Calculating cotton organizations. G. R. Merrill .....1624
Card-room suggestions. F. C. Adams..1652
Carders and South Carolina Spinners Divisions of S.T.A. meet.....2339
Charts control size of cotton sliver and roving. Tom Wood..... 84
Check, novelty, of all cotton. H. L. Robertshaw ..... 662
Coated fabrics need suitable equipment. J. T. Gibbons.....2316
Compliance drive launched by cotton textile industry .....1252
Conveying system. Earley & Harris....2519
Coordination move in cotton industry..1805
"Cotton carded cloth".....1869
Cotton mill tests the subject of Eastern Carolina S.T.A. .....1096
Cotton string knitting vogue. M. G. Barnwell ..... 92
Daniel Pratt, pioneer, honored in Centennial celebration. G. H. Watson..2298
Discharge printing on cotton and rayon. F. A. Newton.....1817
Dobby, care of. John Picone.....1065
Dogtooth weave .....2115
Dotted swiss, true. Thomas Nelson....1258
Drying cotton goods—U. S. Institute for Textile Research .....1274
Drying and sizing cotton rayon necktie fabrics. Philip Le Brun..... 97
Dusts from cotton fabrics.....1094
Ellenbogen bill opposed by A.C.M.A....1054
Ends down test on spinning.....1288
Energy drive for looms.....2309
Fabrics of 1936..... 435
Fancy effects by rearranging simple weaves. T. R. Hart..... 76
Finishing cotton-wool mixtures. J. S. Sargent .....1288
Humidity of the right amount improves yarn strength. A. W. Thompson.....1266
Industrial Cotton Mills installs new steam plant .....2327
Japan exports cotton cloth in increasing numbers .....1805
Japan, textile mission to.....2080
Japanese duty on cotton raised.....1250
Japanese epic textiles. J. W. Proctor..2079
King Cotton can be cured—a banker says so. F. W. Shibley..... 62
Lace can be sturdy. George Middleton.2528
Layout for planned expansion of cotton lace mill. B. El Maxon..... 660
Leno devices .....1653
Leno devices. S. R. Moore.....2335
Leno dispute .....1290
Leno patterns from one set of doups. Thomas Nelson ..... 654
Leno weaving needs shaker motion....1478
Let-off, trouble at the. Ivar Moberg.. 236
Lickerin damage. Robert Burgess.... 895
Lighting the mill.....2092
Loomfixer's contribution. W. G. Robertson .....2114
Loomfixer's questions. Ivar Moberg.... 648
Loom-inspection cars for box dobby or cone loom. S. C. Mahaffey.....2103
Machinery organizations — calculations for yarns with long-draft modifications. G. R. Merrill.....1451
Machinery organizations for 80s combed yarn. G. R. Merrill.....2102
Machinery organization for print cloth yarn. G. R. Merrill.....2304
Machinery organizations—twist contraction and waste loss. G. R. Merrill...1260
Machinery organization with long draft for 40s to 60s cotton yarn. G. R. Merrill .....1812
Master Mechanics Division of the S.T.A. meets .....2340
Mercerization discussed at A.A.T.C.C. meeting .....2324
Mock filling ..... 268
N.A.C.M. meeting at Boston.....2076
Narrow fabric finishing.....2116
Narrow-fabric weaves. E. J. Gibbons.. 656
National cotton week.....1254
New England, aroused, to remove local handicaps. J. A. Austin..... 232
1935 cotton and cotton textile prices and activity ..... 444
North Carolina Textile School Show girls select fabrics..... 858
Northern North Carolina-Virginia Division of S.T.A. meeting.....1098, 2337
Numbering novelty yarns.....2326
Oil spots removed from cotton-wool knit goods .....1290
Organizations, how to calculate the details of cotton. G. R. Merrill.....1062
Partial exemption under Healey Act recommended .....2291
Pepperell steps up.....2082
Permanent finishes on cotton. J. T. Gibbons .....1630
Piece-goods mercerizing. C. A. Jennings .....2098
Plush warps, beaming.....2116
Plush warps can be prepared better and faster. G. R. Robertshaw.....1276
Practical helps for cotton overseers.... 448
Preventing wrong twist.....1476
Push cord weaving.....1870
Queen Mary's draperies.....1442
Reducing seconds .....1868
Red stains on manipulated fabric.....2537
Regulating unnecessary cotton mill waste. Robert Burgess..... 75
Rocky Mount Mills modernizes by replacement of old machines.....•1810
Rough woolen cards and other causes of neps. L. A. Crosland.....1453
Rust cotton picker (ed).....1804
Rust cotton picker. M. G. Barnwell...1806
S.T.A. discusses carding, roving and spinning ..... 679
S.T.A. Eastern Carolina meeting discusses larger package.....2542
S.T.A. Tennessee Division discusses general mill practices.....2541
S.T.A. Weavers Division meeting.....2118
Sanforizing today. C. H. Ramsey.....2522
Setting drafting rolls. A. K. Landau..1448
Shall twist be balanced? A. K. Landau.2510
Sheeting-yarn organization. G. R. Merrill .....2526
Shirting design ..... 890
Sizing and finishing. F. G. LaPiana...1272
Sizing knit cotton goods.....1478
Skip dents in mock leno..... 676
Slashing cotton warps. Robert Burgess 241
Slashing hints. J. M. Bolt.....1872
Snarls in flyer spinning. George Hendricks ..... 101
Solution of problem in printing. F. L. Taylor .....1072
South and cotton industry (ed)..... 848
South Carolina Spinners Division of S.T.A. meeting .....1097
Staple cotton fabrics; canton flannel, 4-leaf filling-face twill, 4-harness filling face twill. John Hoye.....2308
Stayle cotton fabrics; cheese and tobacco cloths, print cloths, fine plain, carded lawn, combed lawn. John Hoye ..... 89
Staple cotton fabrics; combed poplin, rep, combed tension rep, drapery rep. John Hoye .....1636
Staple cotton fabrics, dimity cords, checks, broadcloth, corded broadcloth, combed broadcloth. John Hoye.1277
Staple cotton fabrics; drill. John Hoye.1816
Staple cotton fabrics; ducks and sheetings—construction, finishes and uses. John Hoye .....1467
Staple cotton fabrics; four harness evensided twill, steep twills, garbardine, combed garbardine, nine-harness tricotine. John Hoye.....2517
Staple cotton fabrics; jean, three-leaf warp twill, coutil, three-leaf filling twill, four-harness twill, four-leaf warp trill. John Hoye.....2101
Staple cotton fabrics; organdy, clipped spot lawn, airplane and balloon cloth, oxford and pongee. John Hoye..... 242
Staple cotton fabrics; osnaburg, part-waste osnaburg, ratine, slub-yarn osnaburg. John Hoye.....1080
Staple cotton fabrics; scrim, beach cloth, marquisette. John Hoye..... 894
Staple cotton fabrics; voile. John Hoye 658
Steam box. P. C. Wayne.....2334
Steel doups. Ivar Moberg.....2334
Streaky appearance on vat-dyed cotton.2537
Striped double plain constructions. R. A. C. Scott.....1462
Stripes in the weave—how to make them to advantage. A. Johnson.....2305
Tape curls ..... 677
Technical advances in cotton manufacture ..... 446
Ten questions on weaving. Ivar Moberg.1454
Ten years of cotton textile manufacturing (table) ..... 644
Textile cycles and mill policies discussed at C.T.I. meeting.....2294
Textile mergers in cotton division since 1916. S. J. Kennedy.....1445
Textile Operating Executives of Georgia meeting ..... 892
Thread, bluing sewing.....1477
Thread, sewing, uneven.....1479
Tiger stripes in knit fabric.....2116
T.O.E. meeting at Atlanta.....2119
Top flats should be ground yearly. Robert Burgess .....1076
Transmutation of fibers prophesied at A.A.T.C.C. meeting ..... 70
Twill finishing .....2336
Tying-in methods. Herman Hesse..... 267
Underwear of cotton stages a comeback. P. W. Niles.....1268
Uneven picker laps. Robert Burgess... 891
Upholstery shows shady filling.....2335
Variable speed spinning at Clark Thread Company ..... 238
Vat-dye penetration improved by unorthodox method. G. Mahon..... 252
Viscose or cotton to produce permanent finishes. J. T. Gibbons.....1470
Wage increases .....2501
Warp sizing. F. G. La Piana.....1070

Waste, source of cotton..... 102
Weaver's patrol. Ivar Moberg.....2096
"Whatsit" fabrics from textiles designed by and for children.....2297
Worth Street rules coordinate trade practices ..... 65
Woven color effects. T. R. Hart.....1643
Cotton Textile Institute—New York meeting celebrates tenth anniversary.....2292
Story of the Institute on its tenth birthday. D. G. Woolf.....2105
Tenth birthday (ed).....2073

## D

**Design**

All-cotton novelty check. H. L. Robertshaw ..... 662
Army greatcoat ..... 102
Barathea weave. John Picone..... 662
Beaux Arts Ball revellers costumed in rayon .....2508
Carpet weaves. C. F. Harleston..... 652
Coating suitable for men's overcoats; adaptable to women's. J. M. Masson.1081
Color in design. Fabor Birren..... 257
Color string knitting vogue. M. G. Barnwell ..... 92
Cotton underwear stages a comeback. P. W. Niles.....1268
Dogtooth weave .....2115
Dotted swiss, true. Thomas Nelson.....1258
Double plain cloths involving color and fancy effects. R. A. C. Scott..... 78
Fabrics of 1936..... 435
Fancy effects by rearranging simple weaves. T. R. Hart..... 76
Fashions for fall will be lovely, not gaudy. E. L. Fetta..... 642
Fashion Futures show.....2077
French mix their wool with hair and feathers. B. E. Hirschberg..... 69
Half hose designs..... 869
Knit underwear fabrics. John Chamberlain ..... 870
Lace can be sturdy. George Middleton 2528
Leno dispute .....1290
Leno patterns from one set of doups. Thomas Nelson ..... 654
Matelasse variations. S. C. Veney.....2514
Narrow fabric weaves. E. J. Gibbons. 656
North Carolina Textile School Show girls select fabrics..... 858
Outerwear knit fashions at show.....1623
Paris fabric offerings stress contrasts. Betty Hirshberg .....2078
Petticoat fabric constructions. H. L. Robertshaw .....1262
Plaid back weaving.....1868
Queen Mary's draperies.....1442
Realistic figures to the fore in current French styling ..... 643
Registration Bureau to eliminate silk-rayon design thefts.....2527
Satin season this fall will produce more fabric changes. John Picone..... 857
Shirting design ..... 890
Skip dents in mock leno..... 676
Skip-twill effects. William Higgins....2086
Staple cotton fabrics; canton flannel, 4-leaf filling face twill, 4-harness filling face twill. John Hoye.....2308
Staple cotton fabrics; cheese and tobacco cloths, print cloth, fine plain, carded lawn, combed lawn. John Hoye ..... 89
Staple cotton fabrics; combed poplin, rep, combed tension rep, drapery rep. John Hoye .....1636
Staple cotton fabrics; dimity cords, checks, broadcloth, corded broadcloth. John Hoye .....1277
Staple cotton fabrics; drill. John Hoye.1816
Staple cotton fabrics; ducks and sheetings—constructions, finishes and uses. John Hoye .....1467
Staple cotton fabrics; four harness even-sided twill, steep twills, garbardine, combed garbardine, nine-harness tricotine. John Hoye.....2517
Staple cotton fabrics; jean, three-leaf warp twill, coutil, three-leaf filling twill, four-harness twill, four leaf warp twill. John Hoye.....2101
Staple cotton fabrics; organdy, clipped spot lawn, airplane and baloon cloth, oxford and pongee. John Hoye..... 242
Staple cotton fabrics; osnaburg, part-waste osnaburg ratine, slub yarn osnaburg. John Hoye.....1080
Staple cotton fabrics; scrim, beach cloth, marquisette. John Hoye..... 894
Staple cotton fabrics; voile. John Hoye 658
Striped double plain construction. R. A. C. Scott.....1462
Style trends in silks and velvets for coming season. E. L. Fetta.....1808
Stripes in the weave—how to make them to advantage. A. Johnson.....2305
Swim suit search. P. W. Niles..... 260
Varied figure designs. A. Bower.....1256
"Whatsit" fabrics from textiles designed by and for children.....2297
Woven color effects. T. R. Hart.....1642

**Dyeing**

Acetate fabrics are faded by glare. H. H. Klein .....1456
Belle Knitting Corp. erects model dye-house and boiler plant. S. B. Lincoln.2322
Bonus system for workers cuts dyeing costs. S. A. Weart.....2318
Chemicals and wool—effect on tensile strength. F. R. Harrison..... 244
Chemistry of dyes discussed at A.A.T.C.C. meeting .....2524
Cotton streaky in appearance.....2537
Dyes and chemicals used in processing rayon .....1848
Economic developments in processing industry in 1935..... 474
Frieze blotchy ..... 890
Fugitive tints. I. G. Sanford.....1264
Fugitive tints now aid knitter and weaver. I. G. Sanford..... 879
History of processing in 1935..... 473
Hosiery dyeing economics. W. T. Leggis ..... 877
Knit goods, money-saving hints on processing. E. S. Dunlap.....1461
Lanett Mill short cuts..... 675
Modernization of a plant..... 874
New dyes and chemicals. W. W. Chase.2313
Plush—fifty pieces can be dyed in one lot. F. B. Kilduff.....1263
Plushes dyed by the continuous process. F. G. Kilduff.....1632
Practical helps for processing overseers. 478
Redyeing wool crepe.....1290
Shaded woolens. D. W. Welsh..... 663
Solution of a problem in printing. F. L. Taylor .....1072
Spray printing of carpets..... 890
Staple rayon dyeing. L. A. Jordan....1629
Technical advances in textile processing in 1935 ..... 476
Timed hydro-extraction prevents variation in silk hosiery. S. G. Newman..1815
Vat-dye penetration on cotton fabrics. G. Mahon ..... 252

## E

Earnings—Boiler water control. N. T. Pef .....1078
Elastic fabric. See Knit Goods.

**Engineering**

Advances in engineering in 1935..... 480
Belle Knitting Corp. erects model dye-house and boiler plant. S. B. Lincoln.2322
Coal-pile robbers can be caught by periodic check-up. L. C. Hubbard.....1640
Conveying system used in Firestone Cotton Mills. Earley & Harris.....2519
Filling from doff box emptied mechanically ..... 888
Finishing plant razes old buildings and erects new ones. B. E. Maxon.....1464
Finishing plants get more steam via automatic stoker. F. A. Westbrook. 251
Glass bricks instead of windows in silk hosiery factory.....1813
Humidity of the right amount improves cotton yarn strength. A. W. Thompson .....1266
Layout for planned expansion of cotton lace mill. B. E. Maxon.....*660
Lighting improvements speeds-up colored yarn production..... 882
Lighting the mill.....2092
Lubricating anti-friction bearings. A. F. Brewer ..... 665
Midwest Power Engineering Conference.1077
Mill painting. A. H. Kennedy..... 254
Mills modernize to meet modern competition ..... 427
Modernization of a plant..... 874
Plant engineer. G. A. Alberga.....1809
Printing machine drives. R. DeVere Hope ..... 86
Profit pilfering in the power house. N. T. Pef .....1457
Smoky chimneys not only symptom of stack losses. N. T. Pef..... 88
Transformer wiring for stop motions. John Picone .....1288
2c per 1,000 gallons—that's all it costs to purify water..... 860
Union Bleachery's new filtration plant..2326
Windowless hosiery mill well designed.2089

**Exhibitions**

British Industries Fair..... 638
Fashion Futures show.....2077
Knitting Arts Exhibition — Textile World's guide ..... 863
Knitting Arts Exhibition described.....1083
Power show .....2520
Textile equipment in the N. Y. Museum of Science and Industry..... 856

## F

Fashion Group. John Black.....1279

**Finishing**

Analysis sheet gives check on hosiery finishing labor. M. G. Berg.....2091
Alpacas of rayon-acetate finished to avoid too much luster. Philip LeBrun .....2100
Balbriggan finishing ..... 889
Cire finish. Philip LeBrun.....2516
Coated fabrics need suitable equipment. J. T. Gibbons.....2316
Constructions, finishes, uses of staple cotton fabrics. John Hoye..... 89
Cotton twill finishing.....2336
Cotton-wool mixture finishing. J. S. Sargent .....1288
Cracks and wrinkles in finishing taffetas. Philip LeBrun..... 651
Drying problems discussed by U. S. Institute for Textile Research.....1274
Drying and sizing cotton rayon necktie fabrics. Philip LeBrun..... 97
Dyes and chemicals used in processing rayon .....1848
Economic developments in processing industry in 1935..... 474
Elastic webbing finishing.....1653
Full slowly for full speed. D. W. Welsh .....2088
History of processing in 1935..... 473
Hosiery finishes. S. G. Newman..... 659
Lot chasing system. Phillip Dodge..... 862
Mercerization discussed at A.A.T.C.C. meeting .....2524
Mercerizing piece-goods. C. A. Jennings .....2098
Modernization of a plant..... 874
Mothproofing materials .....2320
Narrow fabric finishing.....2116
New dyes and chemicals. W. W. Chase.2313
North Carolina Finishing Co. expands buildings .....2325
Permanent finishes on cotton. J. T. Gibbons .....*1630
Petticoat finishing procedure. Philip LeBrun .....1262
Practical helps for processing overseers 478
Profits are possible in the job finishing industry .....2321
Rayon French crepe finishing. Philip LeBrun .....1068
Silk finishing plants get more steam via automatic stoker. F. A. Westbrook. 251
Sizing-Acetate yarn sizing..... 102
Sizing and finishing. F. G. LaPiana...1272
Sizing knit cotton goods.....1478
Southern Mercerizing Co. adds new warp range .....2325
Stonecutter Mills adds plants for fine synthetics .....2326
Technical advances in textile processing in 1935 ..... 476
Viscose on cotton to produce permanent finishes. J. T. Gibbons.....1470
Wage increases .....2501
Warp sizing. F. G. LaPiana.....1070
Warping and sizing acetate warp. Cooper & Mattmann.....1460

## G

Glass textile ..... 66
Groves, James .....2081

## H

**Hosiery**

Analysis sheet gives check on hosiery finishing labor. M. G. Berg.....2091
Carpet beetle in hosiery.....2537
Chafed stockings .....1289
Cost system saves $49,000 a year in hosiery mill. F. R. Fletcher..... 872
Crepe hosiery, kinks in.....1477
Distorted wales in full fashioned hosiery 103
Dyeing economies. W. T. Leggis..... 877
Fabrics of 1936..... 435
Fugitive tints now aid knitters and weavers. I. G. Sanford..... 879
Full fashioned hosiery standards..... 234
Glass bricks instead of windows in silk hosiery factory .....1813
Going South? re-location no automatic solution ..... 867
Half hose designs..... 869
Harsh hosiery .....2115
History of knit goods in 1935..... 467
Holes in bleached hosiery.....1094
Holes in hosiery.....2335
Holes in leg fabrics..... 103
Horizontal needle-alignment in full fashioned. W. A. Simond.....1814
Knee-length hosiery rates. M. G. Berg.1450
Knitting Arts Exhibition described.....1083
Knitting Arts Exhibition — Textile World's Guide ..... 863
Low-luster and spot-proof finishes demanded. S. G. Newman..... 659
N.A.H.M. convention and show at Philadelphia .....1058
Needle-bar alignment on full fashioned machines. W. A. Simond.....1634
Nolde & Horst celebrate birthday.....1621
Orders march through hosiery finishing plant under control. M. M. Abrams..2505
Practical helps for knitting overseers.. 472
Production of hosiery and underwear in 1936 ..... 468
S.H.M.A. meeting .....1619
Seamless knitting. G. E. Cottrell..... 81
Seamless progresses. Southwick Hall.. 876
Silk soaking. Albin Johnson..... 85
Sinker-cam adjustment. G. W. Sheeley 269
Sleazy hosiery .....2115
Soaking silk for knitting hosiery. G. A. Thomas .....1458
Split full-fashioned. M. C. Miller.....1270
Split full fashioned is returning. M. C. Miller ..... 248
Stitch, difference in..... 269
Stopping the carriers on full fashioned machines. M. C. Miller..... 82
Streaks new cause of complaint in ringless ..... 647

Survey of hosiery situation being made by N.A.H.M. Earl Constantine.....1443
Technical advances in hosiery in 1935.. 470
Telegraph code for hosiery mills. M. M. Abrams .....1639
Timed hydro-extraction prevents variation in silk hosiery. S. G. Newman..1815
Uneven shades ..... 677
Uniform stitches in full fashioned hose depends on alignment. W. A. Simond.2300
Weather effect on hosiery.....1093
Where split fabrics join. M. C. Miller..1066
Why 13/15 denier?.....2538
Windowless mill for the Hudson Silk Hosiery Co. .....2089
Wrinkles in hosiery.....1290
Yellow stockings .....1869

## J

Japan—Cotton textile mission leaves San Francisco Christmas Eve.....2500
Import limit again urged..... 850
Imports from Japan in 1935..... 426
Japanese epic in textiles. J. W. Proctor.2079
New cotton resources..... 637
Rayon's golden age in Japan cut short by foreign tariff rise. Kiyoshi Taki.. 68
Textile mission to Japan.....2080

## K

### Knit Goods

Barry effect in knit goods.....1869
Cotton string knitting vogue. M. G. Barnwell ..... 92
Cotton underwear stages a comeback. P. W. Niles.....1268
Duplicating knit fabric..... 891
Fugitive tints now aid knitters and weavers. I. G. Sanford..... 879
History of knit goods in 1935..... 467
Holes in circular knit rayon.....2336
Imitating hand machines.....1874
Inspecting machines which catch knitting defects. P. W. Niles.....1452
Knit pattern fields..... 676
Knit pattern fields. J. B. Lancashire.. 2094, 2307
Knitting Arts Exhibition described.....1083
Knitting Arts Exhibition — Textile World's Guide ..... 863
Modified plain stitch..... 676
Munsingwear Corp. celebrates fiftieth birthday .....1621
Outerwear knit fashions at show.....1623
Philadelphia show and convention.....1058
Practical helps for knitting overseers.. 472
Processing knit goods, money-saving hints on. E. S. Dunlap.....1461
Raschell fabric curls.....2538
Rib cuffs and bottoms on flat machines with racking. W. H. Brown..... 878
Sizing knit cotton goods.....1478
Skips in knitting double, plush fabrics.. 101
Spots on circular knit cloth.....2114
Swim-suit search. P. W. Niles..... 260
Technical advances in knit goods in 1935 ..... 470
Tiger strips in knit fabric.....2116
Underwear fabrics. John Chamberlain. 870
Underwear web ..... 269
Unstretchable collars can be made on any old ribber. P. W. Niles..... 655
Wage increases .....2501
Weak spots in knitting yarn. C. H. Miller .....1476

## L

### Labor

Bigelow-Sanford has a plan for employee training ..... 67
Bonus system for workers cuts dyeing costs. S. A. Weart.....2318
Cone's camp for employees.....1620
Conferences between manager and men necessary .....1435
Ellenbogen bill dies from Guffeyitis....1250
Fixing responsibility. L. L. Kingsford.1658
Human relations conference in Blue Ridge, N. C.....1616
Industrial relations (ed).....1611
Machines and unemployment (ed)..... 634
New York minimum wage decision.....1248
Processing industry developments in 1935 ..... 474
Third-shift menace attacked at N. C. Manufacturers' meeting .....2502
Time studies as applied to skein-winding. H. O. Deuel.....2084
Time studies on knee-length hosiery rates. M. G. Berg.....1450
Tuning-up labor relations..... 422
Work week and shifts (ed)..... 413

### Linen

Linen—Stains on linen..... 269
Warp sizing. F. G. LaPiana.....1070

### Looms

Energy drive for looms.....2309
Is the loom o.k.? S. C. Mahaffey.....2103
Silk and rayon work assignment study on looms per weaver. L. P. Alford.. 72

## M

Machinery—Sales of machinery in 1935.. 482
Storage charge against salvaged equipment ..... 889

### Maintenance

Asbestos wrapping in size kettles.....1092
Cleaning machinery ..... 675
Cleaning and dressing oil soaked floors. 677
Coal-pile robbers can be caught by periodic check up. C. L. Hubbard.....1640
Cotton overseers' practical helps..... 448
Dobby, care of. John Picone.....1065
Handling tools for repair work. L. L. Kingsford .....1481
Inspecting and testing in modern mills discussed by R. J. McConnell before S.T.A. .....2515
Knitting overseers' practical helps..... 472
Lanett Mill short cuts..... 675
Loom-inspection cards for box dobby or cone loom. S. C. Mahaffey.....2103
Lubricating anti-friction bearings. A. F. Brewer ..... 665
Mill painting. A. H. Kennedy..... 254
Plant engineer. G. H. Alberga.....1809
Polishing drum for small metal parts.. 889
Practical helps for engineers and mechanics ..... 484
Rayon overseers' practical helps..... 460
Removing spindles from shuttles. C. H. Callahan ..... 674
Repairing feelers. C. H. Callahan.....1092
Saving time and the loomfixer. V. C. Boris ..... 889
Silk overseers' practical helps..... 466
Stains from tenter..... 267
Storage charge against salvaged equipment. J. E. Hyler..... 889
Storing harnessed beams.....1092
Tying up drop wires.....1476
Wood fastened across mill prevents goods from catching when loading...2536
Wool overseers' practical helps..... 454

### Management

Card-room charts. Tom Wood..... 84
Commission weaving rates on French crepe suicidal. John Picone.....1267
Factoring business doubled since 1929..1444
Overseers' duties (S.T.A. meeting).....1440
Plant engineer. G. H. Alberga.....1809
Profits are possible in the job finishing industry .....2321
Matthews, Albert T.....1255
McGraw-Hill editors' opinions on 1936.... 98

### Merchandising

Colors, fabrics and petticoats for fall. E. L. Fetta..... 850
Factoring business doubled since 1929..1444
Fashion Futures show.....2077
Fashions for fall will be lovely, not gaudy. E. L. Fetta..... 642
French silk crepe weaving prices suicidal. John Picone.....1267
Matching piece goods. Phillip Dodge.. 101
National Cotton week.....1254
Petticoat's return expands field for acetate taffetas. Robertshaw, LeBrun.1262
Profits tune in 1936..... 424
Rayon merchandising from 1911 to 1936.1862
Survey of hosiery situation being made by N.A.H.M. Earl Constantine.....1443
Tuning up management to meet competitive conditions ..... 416
Two cotton goods selling agencies merge .....1060
Worth Street is having its face lifted..1086
Midwest Power Engineering Conference—Chicago conference .....1077

### Modernization

Appleton builds new bleachery.....2328
Arkwright Finishing modernizes power plant .....2326
Belle Knitting Corp. erects model dyehouse and boiler plant. S. B. Lincoln.2322
Finishing plant modernizes..... 874
Finishing plant razes old buildings and erects new ones. B. E. Maxon.....1464
Franklin Rayon continues expansion of facilities .....2325
Industrial Cotton Mills installs new steam plant .....2327
Lanett Bleachery enlarges plant.....2328
Mills modernize to meet modern competition ..... 427
Move of Belle Knitting Mills facilitated modernization .....2509
North Carolina Finishing Co. expands buildings .....2325
Pacific Mills modernizes steam plant...2327
Pepperell modernizes mill at Lindale, Ga. .....2082
Proximity Mfg. revamps print works and bleachery .....2324
Rock Hill adds new buildings.....2328
Rocky Mount Mills modernizes by replacement of old machines.....1810
Southern Mercerizing Co. adds new warp range .....2325
Stonecutter Mills adds plant for fine synthetics .....2326
Union Bleachery's new filtration plant..2326
Morrissey, J. Frank.....2081
Morse, Ernest C.....1447
Mothproofing materials .....2320

## N

National Association of Cotton Manufacturers—Boston meeting .....2076
National Assn. of Hosiery Manufacturers—Convention and show.....1058
National Assn. of Woolen & Worsted Overseers. Annual outing.....1291
National Association of Wool Manufacturers—Seventy-first annual meeting. 644
National Knitted Outerwear Assn.—New York convention ..... 645

### New Machinery and Processes

Air-circulating and humidifying system..2341
Beam for large warps.....1484
Beaming machine .....1484
Bearing, improved .....1099
Bearing, packed .....1659
Belt, compensated .....2544
Belting, leather ..... 683
Blending reserve improved.....1100
Block, pillow ..... 107
Bobbin, flat, and shuttle.....2543
Bobbin material ..... 107
Boiler feeder .....2122
Burner, coal .....1660
Cable accessories .....1295
Card for opening hard-twist waste....2341
Chair, industrial ..... 897
Circuit breaker ..... 107
Cleaner for throwing bobbins..... 682
Cleaning system .....2122
Cloth guider, electric.....1296
Coating, preservative .....2122
Collarette and strip cutting machine...1659
Color analyzer ..... 272
Color-blending unit for one-process pickers .....2543
Color-matching lamp .....1100
Compensator, automatic pressure.....1660
Condenser, return air..... 683
Conduit-grounding items ..... 107
Contactor, magnetic ..... 272
Control, heating .....1660
Control, remote valve.....2341
Control unit, universal.....2543
Controllers, indicating .....2122
Cooler, unit air.....2342
Counter, pick .....1483
Counter, yardage ..... 683
Covering, spinning roll.....1099
Current analyzer .....1661
Cutter for cellophane staple.....1659
Cutter for ribbon.....2544
Damper, vibration ..... 272
Doubling and folding machine.....1484
Dresser reel ..... 896
Drive, variable speed.....1100
Dryer, continuous. F. K. Howell.....2521
Dryer, stock .....1296
Dryer, tenter ..... 272
Embossing machine .....2341
Engraving proving and sample printing.1484
Evener belt shipper.....1295
Exhaust purifier .....1661
Fingering machine ..... 106
Fire-fighting tool .....2122
Frame, worsted ring.....1483
Full-fashioned machine parts.....1875
Gear box for rayon sizer.....1485
Grinder, roll .....1100
Guides for yarn.....2342
Harness motion ..... 683
Heater, feedwater ..... 273
Heater for lint-laden air..... 896
Heater for sprinkler valves.....2341
Hosiery inspection forms.....2121
Hosiery machines .....1099, 1101, 1483
Humidifier, disk-type .....2543
Insulation, pipe-line .....1297
"Jacquard," electrical ..... 897
Joint, pressure, for dry cans.....1659
Knitting machine .....1295
Knitting machine, pattern rib..... 682
Knitting machine, warp..... 273
Knitting machine with stroboscopic control ..... 682
Koroseal roll covering.....2121
Lamp, mercury vapor.....1296, 1660
Lamp, 1000 watt.....1659
Lamp, two filament.....2544
Leasing device .....1485
Lighting unit .....272, 2121
Lighting unit, mercury-mazda.....2543
Linestarter, de-ion .....2544
Loom, convertible ..... 682
Loom, ribbon ..... 273
Looms, single pick, made automatic.... 272
Magnifier .....1296
Meter, PH .....106, 1659
Meter, reflection ..... 106
Microscopic movies ..... 106
Milanese and tricot machines.....1875
Motor base, automatic.....1660
Motor-explosion-treated .....2543
Motor, fan cooled inclosed.....1100
Motor, totally inclosed..... 683
Motors of new design.....2342
Mule, large package.....1875
Needle locator for carpet manufacture.2341
Office equipment .....2342
Oil cups .....1100
Pail for latex.....1295
Photo-electric cell adapted to raw-silk grading ..... 896
Proportioning machines .....1296
Psychrometer, hand aspirated.....1660
Pumps, centrifugal .....2122
Recorder-controller .....1440
Recorder, time ..... 106
Reflectometer, photo electric.....1295
Ring frame for worsted.....1875
Rollers, conveyor .....1297
Sampler, liquid-caustic .....1659
Sealer, carton .....1295

Sheave for V-belt drives....2544
Shuttle eye .... 683
Slasher, rayon ....1100
Soaking or tinting machine, skein....1483
Speed reducer, worm gear.... 107
Speed, variable ....1484
Spindle for stop-motion ring twisters..2121
Spindle, twister ....1099
Spindle, worsted ....2543
Steam and water mixer....2341
Steam return system....2121
Steamer, laboratory ....1296
Stiffness tester ....2121
Stoker, mechanical ....1296
Stop motion for knitting machines....1296
Stroboscope ....1099
Sueding machine ....1295
Switchgear, metal clad.... 107
Switching, angle, for synchronous motors ....1661
Telephone booth for noisy locations.... 107
Temperature instrument .... 683
Temple and roller....2341
Tester, fabric-shrinkage .... 106
Testing machine, fabric wear.... 106
Thermometer ....2342
Thermometer, gas filled record....2342
Transfer machine ....1099
Trap, steam ....2544
Traverse bar ....1659
Trimmer, lace ....1485
Truck for fabrics, stainless....2544
Tuck machine .... 274
Twisting ring, self-lubricating.... 683
Valve, control-accessory ....1660
Valve, globe ....1660
Vibration insulators ....1660
Warp beam, paperless....1483
Warp-stop motion ....1875
Warping machine .... 897
Water cooler .... 106
Water spray gun.... 106
Welding machine, protected....2121
Welding rod .... 106
Winder for three carrier-press offs....1484
Winders and twisters....1875
Wire, fence ....1101
Nicholson, William S....2081


## O


**Outerwear, Knit**

Imitating hand machines....1874
Inspecting machines which catch knitting defects. P. W. Niles....1452
Knit fashions at show....1623
Knit-pattern fields. J. B. Lancashire.. 2094, 2307
Knitting Arts Exhibition described....1083
Knitting Arts Exhibition — Textile World's Guide .... 863
National Knitted Outerwear Assn. convention .... 645
Knitting yarn containing weak spots....1476
1935 progress in outerwear.... 468
Rib cuffs and bottoms on flat machines with racking. W. H. Brown.... 878
Spots on circular knit cloth....2114
Swim suit search. P. W. Niles.... 260

**Overseers' Corner**

Developing leaders ....1287
Giving credit where due....2535
Hiring second hands....1867
Is cleanliness worth the cost?....2333
Keep small things small....1091
Mixing in politics.... 673
More about employer-employee relations 100
Nobody is perfect.... 887
Overseers' attitude toward workers.... 266
Report cards on workers?....1475
Vacations with pay....1651
When to eat....2113


## P


Pendleton, Moses, heads American Woolen Co. ....1442
Pickard, Edward T....1255

**Power**

Arkwright Finishing modernizes power plant ....2326
Boiler water control. N. T. Pef....1078
Energy drive for looms....2309
Engineering advances in 1935.... 480
Finishing plant razes old buildings and erects new ones. B. E. Maxon....1464
Finishing plants get more steam via automatic stoker. F. A. Westbrook.. 251
Industrial Cotton Mills installs new steam plant ....2327
Midwest Power Engineering Conference.1077
Mills modernize to meet modern competition .... 427
Pacific Mills modernizes steam plant...2327
Printing machine drives. R. DeVere Hope .... 86
Profit pilfering in the power house. N. T. Pef ....1457
Smoky chimneys not only symptom of stack losses. N. T. Pef.... 88
Transformer wiring for stop motions. John Picone ....1288
Pratt, Daniel, pioneer, honored in Centennial celebration. G. H. Watson....2298

**Printing**

Discharge printing on cotton and rayon. F. A. Newton....1817
Permanganate—ammonia printing ..... 256
Printing rollers ....1654
Solution to a problem in printing. F. L. Taylor ....1072
Spray printing of carpets.... 890


## R


**Rayon**

History of rayon in 1935.... 455
Production of rayon yarn in 1935..... 235
World production for 1935.... 415

**Rayon Manufacturing**

Air conditioning, water treatment, control instruments ....1846
Alpacas of rayon acetate finished to avoid too much luster. Philip LeBrun ....2100
A.S.T.M. discusses standards for rayon.2299
Barathea weave. John Picone.... 662
Beaux Arts Ball revellers costumed in rayon ....2508
Belle Knitting Corp. erects model dyehouse and boiler plant. S. B. Lincoln ....2322
Belts on silk-rayon double-twisters.....2114
British rayon week for name and sales.1251
Chart system for silk or rayon weave room. John Picone.... 256
Continuous dryer. F. K. Howell.....2521
Crepe warps, knotitng.... 268
Denier and filament number of American commercial rayon yarns.... 457
Discharge printing on cotton and rayon. F. A. Newton....1817
Dobby, care of. John Picone....1065
Drying rayon goods—U. S. Institute for Textile Research ....1274
Drying and sizing cotton-rayon necktie fabrics. Philip LeBrun.... 97
Dyeing staple rayon. L. A. Jordan.....1629
Dyes and chemicals used in processing rayon ....1848
Elevation rods for rayon warping.....1093
Fabrics of 1936.... 435
Fading by glare. H. H. Klein.....1456
Filling breakage. S. C. Mahaffey.....2306
Filling, running ....2336
Flat quill introduced to increase shuttle capacity ....2302
Franklin Rayon continues expansion of facilities ....2325
French crepe finishing. Philip LeBrun.1068
Fugitive tints. I. G. Sanford.....1264
Gelatin sizes ....1290
Georgette, knot kinks in.... 891
Georgette, knot kinks in. B. F. Hayes..1291
Golden age of rayon in Japan cut short by foreign tariff rise. Kiyoshi Taki.. 68
Holes in circular-knit rayon....2336
Humidity requirements for rayon and acetate. J. L. Bitter.... 246
Large package throwing of silk and rayon. I. G. Sanford....1626
Loom-inspection cards for box dobby or cone loom. S. C. Mahaffey....2103
Loom pattern chains for foundation weaves. S. C. Veney....1482
Machines and equipment which advanced rayon:
Yarn spinning equipment....1828
Soaking equipment ....1832
Throwing machines ....1832
Staple and waste....1833
Winding equipment ....1834
Yarn-package machinery ....1835
Yarn conditioners ....1835
Warping problems ....1836
Warp sizing machines....1837
Weaving equipment ....1839
Rayon knitting ....1841
Dyeing and finishing....1841
Matelasse variations. S. C. Veney.....2514
Merchandising of rayon from 1911 to 1936 ....1862
Narrow fabric finishing....2116
1911's "thread of candy" becomes 1936's most versatile fiber. H. D. Smith....1854
1935 trend figures in rayon.... 456
Numbering novelty yarns....2336
Paris fabric offerings stress contracts. Betty Hirshberg ....2087
Perlok yarn. E. D. Fowle....2506
Petticoat fabric constructions. H. L. Robertshaw ....1262
Petticoat finishing procedure. Philip LeBrun ....1262
Picker rod clamp. C. H. Callahan.....1652
Practical helps for rayon overseers..... 460
Queen Mary's draperies....1442
Rayon company histories
Manville Jenckes ....1826
New Bedford Rayon....1827
New Process Rayon....1827
Viscose Co. ....1820
DuPont ....1921
Industrial Rayon ....1822
Celanese ....1822
Tennessee Eastman ....1823
Tubize Chatillon ....1824
American Bemberg ....1824
American Enka ....1825
North American Rayon....1826
Skenandoa Rayon ....1826
Delaware Rayon ....1826
Rayon manufacture in the U. S. 1911-1936. D. G. Woolf....1819
Rayon-staple organization ....2536
Reducing seconds ....1868
Registration Bureau to eliminate silk rayon design thefts....2527
Silk and rayon work assignment study on looms per weaver. L. P. Alford.. 72
Sizing acetate yarn.... 102
Skein-winding analysis. H. O. Deuel..2084
Soiled knots in rayon....890, 2114
Staple fiber . . . its rise and reign....1860
Steam box. P. C. Wayne....2334
Style trends in velvets for coming season. E. L. Fatta....1808
Taffetas, cracks and wrinkles in. Philip LeBrun .... 651
Technical advances in rayon for 1935.. 458
Textile World's contribution to the progress of the American Rayon industry ....1852
Throwing costs ....2536
Transmutation of fibers prophesied at A.A.T.C.C. meeting .... 70
25th anniversary of rayon manufacture number ....September
25 years of questions and answers on rayon matters ....1857
Tying-in methods. Herman Hesse..... 267
Viscose on cotton to produce permanent finishes. J. T. Gibbons....1470
Wage increases ....2501
Warping and sizing acetate warp. Cooper & Mattmann....1460
Waviness eliminated in rayon....1868
World rayon output estimated....1862
Worsted-rayon staple superior to wool in strength ....2090
Yarn dyers progress....1859

**Research**

Boyce Thompson Institute carries out research on cotton.... 74
U. S. Institute for Textile Research discusses distribution research....2296
Wharton School to study production and distribution organization in textile industry ....1438
Rheinauer, Daniel ....1447
Rhode Island Textile Assn. offers a scholarship ....1657

**Rubber**

Elastic braid finished....1094
Elastic webbing finishing....1653
Technical advances in knit goods in 1935 .... 470


## S


**Schools**

Columbia's textile courses....1874
Textile foundation sponsors teaching materials .... 637
Textile graduates in demand as schools release this year's crop....1446
Textile school deans hold conference...2291
Textile school heads meet at Atlanta..1061
Silk—History of silk in 1935.... 461
1935 silk prices and silk mill activity.. 462

**Silk Manufacturing**

Belts on silk-rayon double-twisters....2114
Bobbins, faulty roving....1093
Chart system for silk or rayon weave room. John Picone.... 256
Checking pH by titration method.. A. H. Grimshaw .... 674
Crepe warps, knotting.... 268
Dobby, care of. John Picone....1065
Drying silk goods—U. S. Institute for Textile Research ....1274
Fabrics of 1936.... 435
Face marks on silk fabrics....2114
Filling breakage. S. C. Mahaffey.....2306
Finishing plants get more steam via automatic stoker. F. A. Westbrook.. 251
Flat quill introduced to increase shuttle capacity ....2302
French silk crepe weaving prices suicidal. John Picone....1267
Fugitive tints. I. G. Sanford.....1264
Georgette, knot kinks in.... 891
Georgette, knot kinks in. B. F. Hayes.1291
How soon can you mount looms? F. J. Luettgen ....1081
Large package throwing of silk and rayon. I. G. Sanford....1626
Loom-inspection cards for box dobby or cone loom. S. C. Mahaffey....2103
Loom patter chains for foundation weaves. S. C. Veney....1482
Milanese, defect in.... 269
Narrow fabric finishing....2116
Narrow-fabric weaves. E. J. Gibbons.. 656
1935 silk prices and silk mill activity.. 462
Numbering novelty yarns....2336
Paris fabric offerings stress contrasts. Betty Hirshberg ....2078
Picker-rod clamp. C. H. Callahan.....1652
Practical helps for silk overseers..... 466
Rayon and silk work assignment study on looms per weaver. L. P. Alford.. 72
Reducing seconds ....1868
Registration Bureau to eliminate silk-rayon design thefts....2527
Satin, chafe marks in.... 103
Satin, corkscrews in. F. J. Luettgen..1628
Satin season this fall will produce more fabric changes. John Picone..... 857
Silk loom pick.... 103
Skein winding analysis. H. O. Deuel..2084
Soaked silk, deposit on.... 268
Soaking China silk....1094

Soaking, silk. Albin Johnson..... 85
Soaking silk for knitting hosiery. G. A. Thomas .....1458
Steam box. P. C. Wayne.....2334
Style trends in silk and velvets for coming season. E. L. Fatta.....1808
Technical advances in silk manufacturing ..... 464
Throwing costs .....2536
Throwing plant conditions.....1655
Transmutation of fibers prophesied at A.A.T.C.C. meeting ..... 70
Tying-in methods. Herman Hesse..... 267
Weaving silks on old loom.....1653
Classifications of silk.....1477, 2115
Silk Travelers Assn.—20th anniversary... 253
Sizing—see Finishing
Southern Conference on Human Relations in Industry. Blue Ridge conference..1616
Southern Hosiery Manufacturers' Assn.—Chattanooga, Tenn. convention.....1619
Southern Textile Assn.—Blowing Rock, N. C. convention.....1440
Carders and South Carolina Spinners Divisions meeting .....2339
Eastern Carolina Division meeting.1096, 2512
Gaston County Division meeting...679, 2540
Master Mechanics Division meeting.... 1293, 2340
Northern North Carolina-Virginia Division meeting .....1098, 2337
South Carolina Spinners Division meeting .....1097
Tennessee Division meeting.....1292, 2541
Weavers Division meeting.....2118
Standardization—A.S.T.M. standards on textile materials published.....2299


## T


**Taxes**

Retroactive tax. G. A. Sloan..... 641
Windfall tax .....1251
Windfall tax. Paul Wooton..640, 850, 2497
Telegraph code for hosiery mills. M. M. Abrams .....1639
Textile Foundation (ed)..... 633
Finances distribution study.....1061
Sponsors teaching materials..... 637

**Textile Industry**

AAA mess tangles again by retroactive tax talk. D. G. Woolf..... 228
Arbitration marks tenth birthday..... 636
Average textile manufacturer. Jack Card .....1615
Chart of industry shows profit.....1803
Congress passes laws on the textile industry .....1439
Depression-high; 1935 textile mill activity highest since 1929..... 414
Ellenbogen Bill (ed).....226, 231, 1051
Fashion Group. John Black.....1279
Flood and tornado damage.....1060
Government purchases of textile summarized ..... 636
Industry needs aid in supporting its own self government (ed).....2495
New England, aroused, to remove local handicaps. J. A. Austin..... 232
New England textile mills damaged by floods ..... 852
1935 in textiles (ed)..... 412
Outlets for textiles in industry..... 420
Plan to liquidate obsolete textile equipment .....1250
Regulatory legislation. Paul Wooton..2497
Tomorrow always comes. Jack Card..2075
Tornadoes wreck southern mills..... 851
Tuning up for better profits. D. G. Woolf ..... 411
Tuning up management to meet competitive conditions ..... 416
Two new associations.....1655
Washington grab-bag; what will industry pick out of it?..... 425
Textile Operating Executives of Georgia. Atlanta meeting .....892, 2119
Textile personalities.....61, 230, 639, 845, 1064, 1254, 1447, 2018, 2499
Textile World—Textile World's contribution to the progress of the American rayon industry .....1852


## U


**Underwear**

Balbriggan finishing ..... 889
Belle Knitting Corp. erects model dye-house and boiler plant.....2322
Cotton underwear stages a comeback. P. W. Niles.....1268
Elastic web for underwear..... 269
Inspecting machines which catch knitting defects. P. W. Niles.....1453
Knit underwear fabrics. John Chamberlain ..... 870
Knitting Arts Exhibition described.....1083
Knitting Arts Exhibition — Textile World's Guide ..... 863
Move of Belle Knitting Mills facilitated modernization .....2509
Munsingwear Corp. celebrates fiftieth birthday .....1621
Philadelphia show and convention.....1058
Production of hosiery and underwear in 1935 ..... 468
Uneven knit ..... 677
Underwear Institute—"Business building facts" report .....2504
United States Institute for Textile Research—Conference on drying problems.1274
New York meeting.....2296


## W


Waterman, George Hall.....1255

**Weaving**

Ten questions on weaving. Ivar Moberg .....1454
Weaver's patrol. Ivar Moberg.....2096
Wrong picks .....2536

**Wool**

1935 wool and wool goods prices and activity ..... 450

**Wool Manufacturing**

Angora rabbit wool. W. H. Butler....1622
Brakes, shuttles, and reeds. B. F. Hayes ..... 245
Breaking the shed sometimes advisable on wool. B. F. Hayes..... 859
Calculating shrinkage. J. S. Sargent..1868
Chemicals and wool—effect on tensile strength. F. R. Harrison..... 244
Coating suitable for men's overcoats; adaptable to women's. J. M. Masson.1081
Committee D-13 discusses wool..... 855
Dogtooth weave .....2115
Double plain cloths. R. A. C. Scott.. 78
Drying wool goods—U. S. Institute for Textile Research .....1274
Fabrics of 1936..... 435
Finishing cotton-wool mixtures. J. S. Sargent .....1288
French mix their wool with hair and feathers. B. E. Hirschberg..... 69
History of wool in 1935..... 449
Leno devices .....1653
Loom picker—a simple article. B. F. Hayes .....1633
Luster wool .....1870
"Milk wool" called cheesy..... 638
N.A.W.M. and local unions (ed).....1612
N.A.W.M. seventy-first birthday..... 644
Oil spots removed from cotton wool knit goods .....1290
Plush fabrics, skips in knitting double 101
Plush—fifty pieces can be dyed in one lot. F. B. Kilduff.....1263
Plushes dyed by the continuous process F. B. Kilduff.....1632
Red stains on manipulated fabric.....2537
Reducing seconds .....1868
Redyeing wool crepe.....1290
Scouring lime-pulled wool.....2116
Spinning Texas wool.....2336
Steam box. P. C. Wayne.....2334
Style trends in velvets for coming season. E. L. Fatta.....1808
Transmutation of fibers prophesied at A.A.T.C.C. meeting ..... 70
Wage increases .....2501
Woven color effects. T. R. Hart.....1643

**Woolen Manufacturing**

Blanket manufacture equipment.....1477
Blanket yarn ..... 676
Blankets, Army, printed by permanganate-ammonia ..... 356
Cost for woolen-mill.....1654
"Cotton carded cloth".....1869
Filling stop motion. B. F. Hayes.....1873
Full slowly for full speed. D. W. Welsh .....2088
Future of woolen card; improvement of present machine ..... 80
Irregular woolen roping. L. A. Crosland .....2312
Mohair bobbins .....1290
1935 wool and wool goods prices and activity ..... 450
Picker sticks. B. F. Hayes.....2539
Plaid back weaving.....1868
Practical helps for wool overseers..... 454
Rough woolen cards and other causes of neps. L. A. Crosland.....1453
Scarf edging .....1093
Shaded woolens. D. W. Welsh..... 663
Spots on wool goods..... 676
Technical advances in woolen and worsted manufacture ..... 452
Varied figure designs. A. Bower.....1256
Warp tying-in and twisting-in.....1478
Weights and widths of woolens.....2537
Woolen-mill organization. J. E. Martel 650
Woolen warp weak.....2115

**Worsted Manufacturing**

Amoskeag Industries purchases mills..1805
Amoskeag's last mile?.....1618
Army greatcoat ..... 102
Braid tops improving. Webster Norris.1074
Contrasting colors in worsted grandrelles. F. B. Hudson..... 250
Fabrics of 1936..... 435
Frieze blotchy ..... 890
Irregularities shown in worsted twists. George Hendricks .....1269
Light spots on worsted yarn..... 269
Lighting improvements speeds-up colored yarn production..... 882
Noble comb adjustment. J. C. Lowe...2512
Picker sticks. B. F. Hayes.....2539
Rayon-worsted staple superior to wool in strength .....2090
Shaded worsteds, a mystery, analyzed. D. W. Welsh.....1069
Skip-twill effects. William Higgins.....2086
Technical advances in woolen and worsted manufacture ..... 452
What wools together will produce wanted worsted blend?.....1657

# Authors' Index


## A

Abrams, Milton M. Orders march.....2505
Salesmen's telegrams .....1639
Adams, F. C. Card-room suggestions....1652
Alberga, Glenn H. Plant engineer.....1809
Alford, L. P. Looms per weaver..... 72
Austin, James A. New England aroused.. 232

## B

Barnwell, Mildred C. From horse-and-buggy days ..... 92
Rust cotton picker.....1806
Berg, M. G. Analysis sheet gives check on hosiery finishing labor.....2091
Hosiery rates .....1450
Birren, Faber. Color in design..... 257
Bitter, J. L. Humidity requirements for rayon and acetate..... 246
Black, John. Fashion at the mill.....1279
Bolt, J. Manning. Slashing hits.....1872
Boris, Victor C. Listening as an art....2333
Regarding the loomfixer..... 889
Bower, A. Varied figure designs.....1256
Brewer, Allen F. Lubrication anit-friction bearings ..... 665
Brown, R. H. Hygrometer and psychrometer readings on relative humidity..1637
Brown, William H. Rib cuffs and bottoms ..... 878
Burgess, Robert. Cotton-mill waste..... 75
Don't neglect the flats.....1076
Lickerin damage ..... 895
Slashing cotton warps..... 241
Uneven picker laps..... 891
Butler, William H. Domestic rabbit wool.1622

## C

Callahan, C. H. Picker rod clamp.....1652
Removing spindles from shuttles..... 674
Repairing feelers .....1092
Card, Jack. Just average.....1615
Tomorrow always comes.....2075
Chase, Winn W. New dyes and chemicals.2313
Cobert, A. J. Now hosiery streaks..... 647
Constantine, Earl. Hosiery survey.....1443
Cooper, Warren, F. & C. C. Mattmann, Jr. Warping and sizing.....1460
Cottrell, George E. For seamless knitting 81
Crosland, L. A. Irregular woolen roping.2312
Rough woolen cards.....1453

## D

Deuel, H. O. Skein-winding analysis.....2084
Dodge, Phillip. Lot chasing..... 862
Matching piece goods..... 101
Dunlap, E. S. Money-saving hints on processing knit goods.....1461

## E

Earley, W. B. & F. C. Harris. Conveying system .....2519
Evans, J. P. Employer-employees relations ..... 674

## F

Fetta, Emma Lou. Colors, fabrics, and petticoats ..... 850
Fashions for fall..... 642
Style trends in silks and velvets for coming seasons .....1808
Fletcher, F. R. $49,000 a year saved by standard cost system..... 872
Fowle, Edwin D. Perlok yarn.....2506

## G

Garside, Alston H. Year ahead in cotton 445
Gibbons, Edwin J. Narrow-fabric weaves 656
Gibbons, John T. Coated fabrics.....2316
Permanent finishes on cotton.....1630
Use of viscose on cotton to produce permanent finishes .....1470
Gill, Wallace. Employer-employee relations ..... 100
Grimshaw, A. H. Checking pH by titration method ..... 674

## H

Hall, Southwick. Seamless progresses.... 876
Harleston, C. F. New carpet weaves..... 652
Harris, F. C. & W. B. Earley. Conveying system .....2519
Harrison. Frederick R. Cemicals and wool—effect on tensile strength..... 244
Hart, T. R. College girls select..... 858
Fancy effects obtainable by rearranging and combining simple ways..... 76
I get the effect I want in woven color effects .....1643
Hayes, Benjamin F. Brakes, shuttles, and reeds ..... 245
Breaking the shed sometimes advisable on wool looms..... 859
Knot kinks .....1291
Loom picker .....1633
Picker sticks .....2439
Spare that spring!.....1873
Hendricks, George. Snarls in flyer spinning ..... 101
Worsted twists .....1269
Herman, Will. Promptness in dealing with operatives ..... 100
Hesse, Herman. Aid to machine tying-in 267
Higgins. William. Skip-twill effects.....2086
Hirschberg, Betty. Contrasts stressed in current Paris fabric offerings.....2078
French mix their wool with hair and feathers ..... 69
Realistic figures to the fore in current French styling ..... 643
Hope, R. DeVere. Printing-machine drives ..... 86
Howell, F. K. Continuous dryer.....2521
Hoye, John. Staple cotton fabrics....89, 242, 658, 894, 1080, 1277, 1467, 1636, 1816, 2101, 2308, 2517
Hubbard, Charles L. Coal-pile robbers..1640
Hudson, Frederick B. What wools together will produce wanted worsted blend? .....1657
Worsted grandrelles ..... 250
Hyler, John E. Reserve and courtesy... 674
Storage charge against salvaged equipment ..... 889

## J

Jennings, C. A. Piece-goods mercerizing.2098
Johnson, Albin. Silk soaking..... 85
Stripes in the weave.....2305
Jordan, L. A. Dyeing staple rayon.....1629

## K

Kennedy, A. H. Mill painting techniques affect mill economies..... 254
Kennedy, Stephen J. Textile mergers in cotton division since 1912.....1445
Kilduff, Frank G. Continuous dyeing of pile fabrics can be done.....1632
Fifty pieces of plush can be dyed in one lot .....1263
Kingsford, L. L. Fixing responsibility....1658
Right way to use tools for repair work..1481
Krag, Albert P. Politics and the mill....1287

## L

Lancashire, J. B. Knit pattern fields .....2094, 2307
Landau, A. K. Shall twist be balanced?.2510
Trouble in using mere rules in setting drafting rollers .....1448
LaPiana, F. G. Sizing and finishing.....1272
Warp sizing .....1070
LeBrun, Philip. Cire finish.....2516
Cracks and wrinkles..... 651
Dryng and sizing cotton rayon necktie fabrics ..... 97
Petticoat finishing procedure.....1262
Rayon French crepes.....1068
Too much luster on rayon-acetate alpacas avoided .....2100
Leggis, William T. Hosiery dyeing economies ..... 877
Lein, Harry H. Fading by glare.....1456
Lincoln, S. B. Belle Knitting Corp. erects model dyehouse and boiler plant .....2322
Lowe, John C. Adjusting the Noble comb.2512
Luettgen, Fred J. Corkscrew in satins..1628
When I receive your silk.....1081

## M

Mahaffey, S. C. Is the loom o.k.?.....2103
What broke the filling?.....2306
Mahon, G. Vat-dye penetration..... 252
Martel, Joseph E. Woolen mill organization ..... 650
Mason, Wilbur. Training loomfixers.....1651
Masson, J. M. Attractive coating.....1081
Mattmann, Carl C., Jr. & W. F. Cooper. Warping and sizing.....1460
Maxon, Bruce E. Planned expansion..... 660
Planned extension .....1464
McKay, W. B. Hiring an overseer.....2535
Merrill, Gilbert R. Cotton organizations .....1062, 1451, 1624
Cotton organizations—twist contraction and waste loss.....1260
Machinery organizations for 80s combed yarn .....2102
Machinery organization with long draft for 40s to 60s cotton yarn.....1812
Print cloth yarn.....2304
Sheeting-yarn organization .....2526
Middleton, George. Lace can be sturdy..2528
Miller, Charles H. Knitting yarn containing weak spots.....1476
Miller, M. C. Split full fashioned...248, 1270
Stopping the carriers..... 82
Where split fabrics join.....1066
Moberg, Ivar. Loomfixer's questions..... 648
Steel doups .....2334
Ten questions on weaving.....1454
Trouble at the let-off..... 236
Weaver's patrol .....2096
Moore, S. R. Leno devices.....2335
Myers, H. R. & E. L. Ridley. 2c per 1,000 gallons—that's all it costs to purify water ..... 860

## N

Nelson, Thomas. On one set of doups.... 654
True dotted Swiss.....1258
Newman, Samuel G. Hosiery finishes.... 659
Timed hydro-extraction .....1815
Newton, Francis A. Overcoming trouble in discharge printing.....1817
Niles, Paul W. Cotton underwear.....1268
Imitating hand machines.....1874
Inspecting machines which catch knitting defects .....1452
New swim suit search..... 260
Unstretchable collars ..... 655
Norris, Webster. Improving braid tops..1074

## O

Orker, A. W. Worker's view.....2113

## P

Parry, W. F. Filing technical material.. 673
Pef, N. T. Control of boiler water.....1078
Profit pilfering .....1457
Smoky chimneys ..... 88
Picone, John. Barathea weave..... 662
Care of the dobby.....1065
Check and double check for silk or rayon weave room..... 256
New satin season..... 857
Suicide cloth .....1267
Transformer wiring for stop motions...1288
Pittenger, L. R. Night overseer should take orders from day.....2113
Proctor, James W. Japanese epic.....2079

## R

Ramsey, Clifford H. Sanforizing today..2522
Ridley, E. L. & H. R. Myers. 2c per 1,000 gallons—that's all it costs to purify water ..... 860
Robertshaw, Ghent Roy. Plush warps can be prepared better and faster..1276
Robertshaw, Harry L. All-cotton novelty check ..... 662
Petticoat fabric constructions.....1262
Robertson, Willis G. Loomfixer's contribution .....2114

## S

Sanford, I. G. Fugitive tints.....1264
Fugitive tints now aid knitter and weaver ..... 879
Large package throwing.....1626
Sargent, James S. Calculating shrinkage.1868
Finishing cotton-wool mixtures.....1288
Scott, R. A. C. Double plain cloths..... 78
Striped double plain constructions.....1462
Sheeley, G. W. Sinker cam adjustment.. 269
Shibley, Fred W. King Cotton can be cured ..... 62
Siegel, Rudolf. Paying doffers.....1475
Simond, Walter A. Horizontal needle alignment .....1814
Needle-bar alignment on full fashioned machines .....1634
Uniform stitches .....2300
Smith, Harold DeWitt. 1911's "thread of candy" becomes 1936's most versatile fiber .....1854
Szynal, Frank. Example for the worker. 673

## T

Taki, Kiyoshi. Rayon's golden age..... 68
Taylor, Frank L. Problem in printing....1072
Taylor, George W. Going South? re-location no automatic solution..... 867
Thomas, George A. Silk gum and fiber..1459
Thompson, A. W. 13% improvement in yarn strength due to adequate humidity .....1266
Townend, P. P. Future of woolen card.. 80

## V

Veney, S. C. Loom pattern chains for foundation weaves .....1482
Matelasse variations.....2514

## W

Waldo, Russel J. Loss of skill through unemployment ..... 267
Watson, George H. Daniel Pratt, pioneer.2298
Wayner, Peter C. Steam box.....2334
Weart, S. A. Lower dyeing costs.....2318
Welsh, David W. For full speed—full slowly .....2088
Fulling tip .....2536
Shaded woolens ..... 663
Shaded worsteds .....1069
Westbrook, Francis A. Finishing plants get more steam via automatic stoker. 251
White, Richard. Bulkier picker laps..... 646
Wood, Tom. Car room charts..... 84
Woolf, Douglas G. AAA mess..... 228
Idea to institute.....2105
Rayon manufacture in the U. S. 1911-1936 .....1819
Tuning up better profits..... 411
Wooton, Paul. Washington again.....2497
Windfall tax ..... 640
Windfall tax a potential nuisance..... 850

# Textile World

VOL. 86, NO. 1—ESTABLISHED 1868

## CONTENTS JANUARY, 1936

DOUGLAS G. WOOLF
*Editor*

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**MANAGEMENT**

1936 Editorial Inventory (*Editorial*) ..... 57
The Editor Says ..... 58
The Editor Presents, This Month and Next ..... 59
King Cotton Can Be Cured; a Banker Says So ..... 62
"Worth Street Rules" Coordinate Trade Practices ..... 65
1935 and 1936—What McGraw-Hill Editors Think of Future 98

**MERCHANDISING**

Rayon's Golden Age in Japan Cut Short by Tariffs ..... 68
The French Mix Their Wool with Hair and Feathers ..... 69
Cotton String Knitting Vogue Still Profitable to Spinners ..... 92

**MILL ENGINEERING**

Over-All Economy Important in Printing Machine Drives .... 86
Smoky Chimneys Not Only Symptom of Stack Losses ..... 88
New Machinery and Processes ..... 106

**MATERIALS**

Glass Textiles Offer Interesting Possibilities ..... 66
What Is Cotton?—Research at Boyce Thompson Institute .... 74

**MEN**

Textile Personalities ..... 60
Bigelow-Sanford Has a Plan for Employee Training ..... 67
Looms per Weaver—Silk and Rayon Work-Assignment Study .. 72
The Personal Page ..... 104

**METHODS**

Transmutation of Fibers Prophesied at A.A.T.C.C. Meeting .. 70
Ways to Reduce Unnecessary Waste in Cotton Mills ..... 75
Fancy Effects by Rearranging Simple Weaves ..... 76
Double Plain Cloths Involving Color and Fancy Effects ..... 78
Future of Woolen Card; Improvement of Present Machine .... 80
An Under-Drive for Seamless Knitting; also Yarn Retriever ... 81
Stopping the Carriers on Full-Fashioned Machines ..... 82
Charts Control Size of Cotton Sliver and Roving ..... 84
Silk Soaking for Three-Carrier Knitting ..... 85
Constructions, Finishes, Uses of Staple Cotton Goods ..... 89
Drying and Sizing Cotton-Rayon Necktie Fabrics ..... 97

**DEPARTMENTS**

The Overseers' Corner ..... 100
Questions and Answers ..... 102
Personal Page ..... 104
New Machinery and Processes ..... 106
New Publications and Business News 122
TEXTILE WORLD Analyst ..... 99
Business Literature ..... 107

**INDUSTRY BRANCHES**

Cotton Digest ..... 108
Wool Digest ..... 110
Rayon Digest ..... 112
Silk Digest ..... 114
Knitting Digest ..... 116
Processing Digest ..... 118
Engineering Digest ..... 120

**McGRAW-HILL PUBLISHING CO., INC.**
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Philadelphia.....*16 South Broad St.* Atlanta.....*1105 Rhodes-Haverty Bldg.*
Washington.....*National Press Building* Chicago.....*520 N. Michigan Ave.*

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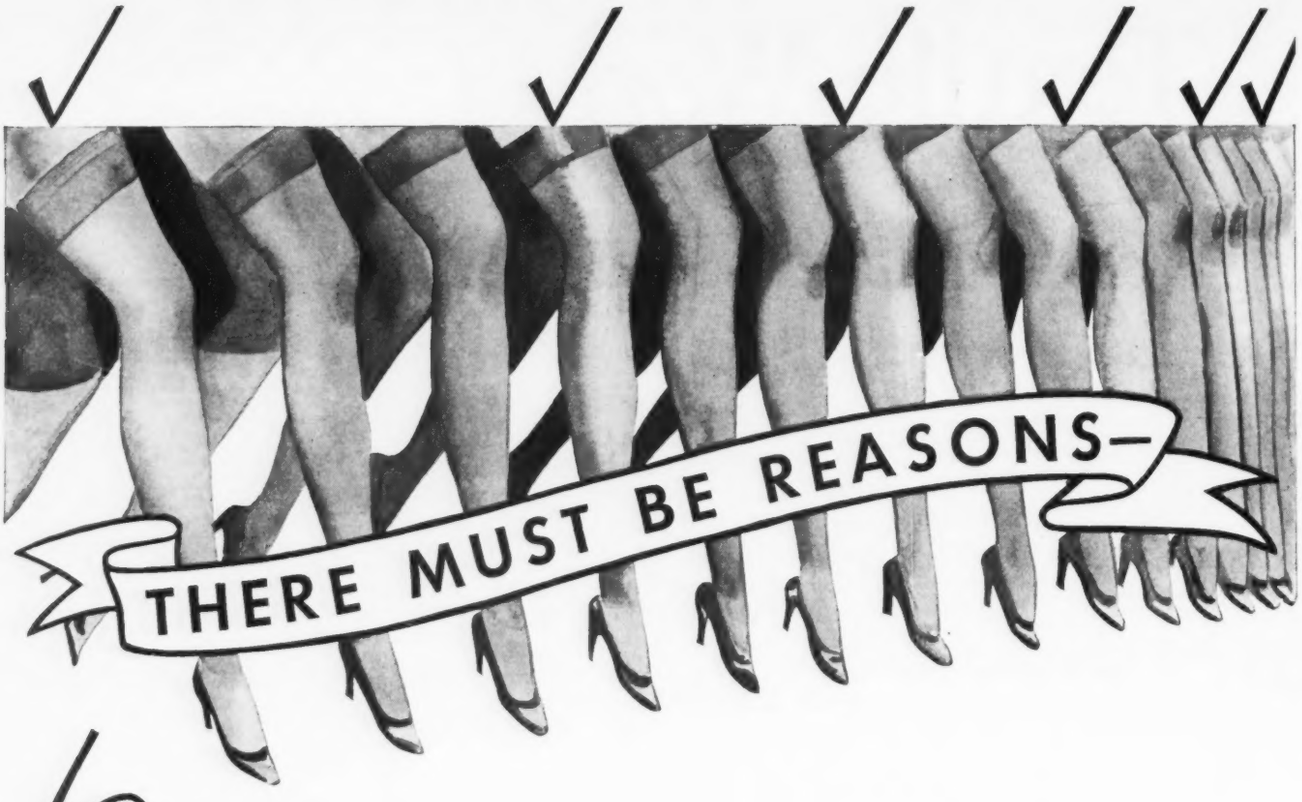
TEXTILE WORLD

(Formerly *Textile World Journal*) with which are combined *Textiles*, *Posselt's Textile Journal* and *Textile Advance News*. Published monthly, United States and Possessions, and Canada, $3 per year; all other countries, $5, U. S. currency or 20 shillings. Single copy, 35 cents, excepting special issues.

**Of this issue 10,845 copies were printed.**

*Member of Audit Bureau of Circulations*
*Member of Associated Business Papers, Inc.*

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# Textile World

January, 1936

▼

*Editor:* DOUGLAS G. WOOLF

# 1936 EDITORIAL INVENTORY

IN taking annual inventory, editorially, for the textile industry, we try, paradoxically, not to be an editor. Not that we don't think a lot of editors, of course, but after all editors are not going to make textile history in 1936. They'll write it, and—we hope—help to influence it, but manufacturers are the ones who will execute the sane (or insane) policies which will compose the record.

And so, we play a game. "If we were a textile manufacturer," we think, "what would we do in 1936?"

Here's what we would do.

★

**1. Modernization:** First and foremost, we would do what one company did, as described in last month's issue, and as an author in this issue advises: Go over the plant and organization from top to bottom, man by man, machine by machine, process by process—and literally "clean house." The results of such a study will amaze even the company which has considered itself efficient. Out of it should come modernization of methods, modernization of machines, modernization of buildings, modernization of supplies—and, most important, modernization of thinking.

The sort of job of this type that can be done in 1936 is so different from and better than the sort that was done in the depths of the depression. Then fear — almost panic — produced penny-pinching forays, of far more harm than good. Today, confidence and hope make possible constructive programs through which all in the organization may benefit.

**2. Code Conformance:** Next, we would stick to the basic labor provisions of the now-defunct NRA codes. If we were one of the few who had slipped, we would get back on the bandwagon. If we were one of the great faithful majority, we would stay there—and would seize every opportunity to proclaim our faith. For instance, if we were a cotton manufacturer, we would sign the agreement now being circulated by the Cotton-Textile Institute. If we were an underwear manufacturer, we would be one of the parties to the voluntary code formulated by the Underwear Institute. And so on and so forth.

There is no sentimentalism about this. It is just plain self-preservation. One of the best things that ever happened to the textile industry was the amazing steadfastness with which code provisions were continued voluntarily in force after the Supreme Court's decision. One of the worst things that could happen to the industry would be a collapse of that conformance: a confession of failure of self-government.

If we were a textile manufacturer, we would recognize our stake in that issue, quite selfishly.

**3. Price Sanity:** Finally, we would see what we could do about fanning a certain spark which is appearing, though dimly, in the industry today: a desire for a profit.

We would not try to foster this spark in our competitors. We would not say: "Now if only John Smith over in Jonesville would sell at a decent price, this market wouldn't be so rotten." We would try a little profitable selling on our own hook. After all, a profit in our pocket would be of more use to us than one in John Smith's pocket.

So, after going through the organization with a fine-tooth comb, as suggested above, and presumably getting a sound knowledge of our cost of production, we would try out the interesting idea of getting back that cost, plus a little extra for our stockholders.

★

Those are the things we would do if we were a textile manufacturer. Just three little things: possibly too modest to carry the ambitious title of Editorial Inventory.

And, yet, they just might work, you know. At least there would be no harm trying.

# THE EDITOR SAYS:

## *AAA—EXIT*

MIXED with the joyous mood in which the cotton textile industry received news of the Supreme Court's anti-AAA decision on Jan. 8, was one of concern over the troublesome details which must be settled before the processing tax becomes history. One of these details is the seller-buyer relationship, of course. All we can say on this point is that there is no sum of money involved which is big enough to warrant the slightest impairment of good-will.

Then there is worry as to the status of those who have paid their taxes regularly as against those in default. Initial news from Washington indicated that the latter were in good luck. Another blow for the copy-book maxims! However, most of these details are still unsettled, as we write this.

No matter how troublesome they may be, they are not important enough to lessen the industry's rejoicing. Prior to the passage of this legislation, we wrote in these columns: "We are confident that its enactment into law would cripple one of the few industries which have been supplying a near-normal degree of employment, and consequently livelihood, to workers. We know that the resulting increase in cost, per garment, to the ultimate consumer would be comparatively slight, but we also know the restrictive effect of inflated prices upon consumption. Moreover, we are sure that the plan would invite foreign competition on a scale hitherto unheard of, and that the only defense would be the construction of higher tariff walls and the start of another vicious circle. . . . However, quite apart from our interest in cotton manufacture we consider the plan an economic monstrosity. It is unsound in its principle, unworkable in its detail, unfair in its discriminatory features. . . . History provides eloquent evidence of the folly of governmental attempts to inflate, artificially, the price levels of commodities. Must we be scared into writing another futile chapter?"

The chapter has been written, and has ended.

■

## *NRA—RIP*

"THE National Recovery Administration and the office of administrator thereof are hereby terminated . . . This order shall become effective on Jan. 1, 1936." Thus spake President Roosevelt on Dec. 21.

There is a deal of tragedy and of pathos in those words. One recalls again the days of high adventure when battalions of industry advanced on Washington, and when the very captains of industry labored as division administrators and deputy administrators—and even assistant deputy administrators.

Only two short years ago!

And today the remains of NRA are divided up between the two—not too friendly—departments, Commerce and Labor. Apparently the only vestige left of NRA as such is the office of Coordinator so volubly filled by Major George L. Berry—a coordinator who has nothing to coordinate but who still keeps on inviting industry to conferences.

There are few kindly words spoken of the departed. In fact, NRA is more apt to be used as a symbol of all the most hated things in the present Administration. To many, NRA means also AAA and WPA and SEC, and then some.

Now we have little interest in organizing a mourners' bench for NRA as such. It had its day of fine frenzy under General Johnson. It was obvious that the madhouse of the summer of 1933 was to die, like the good, young.

However, we do want to say a word for the NRA idea and its application to textile manufacture. We have said before—and we must repeat—that all the textile industry was seeking from NRA was help in the enforcement of the very doctrines it had formulated itself—and had tried unsuccessfully, over a period of years, to impose upon a recalcitrant minority. It got that help, temporarily, but later an over-dose of bureaucracy embittered even the code-makers themselves.

There is a tendency, today, to feel ashamed of the enthusiasms of 1933. Why? Is not the industry as a whole still observing the basic labor provisions set down in that year? Is not the continued enforcement of those clauses one of the major problems of the future?

We do not know what type of Federal aid—if any—industry will eventually seek in the strengthening of its self-government. We do know, however, that there should be no sense of shame on the part of those who conducted the NRA experiment. It was based on a high purpose; its significance has yet to be fully comprehended.

We think textile manufacturers could even afford to murmur "Rest in Peace" over the remains of what was once NRA.

■

## *A Japanese Santa*

CHRISTMAS TIME was a most appropriate season for the State Department to announce that Japanese manufacturers and exporters of cotton textiles had decided voluntarily to restrict their exports to the United States, and that therefore "there is little likelihood of a repetition of such abnormal increases in exports of cotton textiles to the United States as occurred during the first six months of 1935."

There is faith in Santa Claus, if ever we saw it! We can visualize such a sweet little Christmas-card motive: the Japanese ambassador standing on tip-toe to insert into the stocking of the Secretary of State these kind and most honorable assurances. This breathes international good-will.

Dr. C. T. Murchison exercised remarkable restraint when he characterized the announcement as "reassuring" but "indefinite." Probably the Doctor didn't want to spoil the State Department's Christmas dreams. A less kindly person would have told the Secretary that there wasn't any Santa Claus. Now that Christmas is over, we wonder if some of his best friends will tell him.

# THE EDITOR PRESENTS:

## *This Month*

**Banker's Diagnosis:**

"King Cotton can be cured," concludes Fred W. Shibley, vice-president of Bankers Trust Co. in an article prepared exclusively for TEXTILE WORLD. "Banker" is really an inadequate term for Mr. Shibley, as he has been an industrial doctor for many years. His diagnosis and prescription will be found starting on page 62.

**A Quartet:**

"Textile Personalities" this month include J. W. Arrington, founder and guiding spirit of Union Bleachery; Sanford Cluett, of Cluett Peabody & Co. and father of controlled shrinkage; Joseph W. Holmes with 60 active years in the wool industry to his credit; Roy E. Tilles who came out of the West to lend vigor to the Gotham Silk Hosiery Co. You may meet this quartet on page 61.

**Glass Textiles:**

Fibrous glass is not a serious threat to cotton, wool, rayon, and silk; but it is an interesting development which offers possibilities for a variety of special uses. This new product is described and pictured on page 67.

**Japan's Rayon Crisis:**

The remarkable advance of Japan's rayon industry threatens to prove a boomerang. Exports, which were a major outlet for both yarns and goods, are drastically reduced as result of rising foreign tariff barriers. The Japanese viewpoint is presented on page 68.

**Gamblers?**

The French textile fraternity must hold a high percentage of gamblers to judge from their willingness to try anything in the form of unusual fiber combination or abnormal construction. Many are impractical for mass production but their character often sets the keynote for a fabric season. Interesting novelties in this category are to be found on page 69. They come from a source close to the Haute Couture.

**Timely:**

Vocational training hasn't been getting very favorable newspaper headlines of late, so we counter with details of the simple, practical plan adopted by Bigelow-Sanford Carpet Co. (Page 66.)

**A Full Program:**

In two evenings and one day 300 textile chemists listened to over a dozen technical papers, witnessed style shows and floor shows, banqueted, visited the battlefield of Chickamauga, attended a textile ball. For report of the technical sessions of the annual meeting of the A. A. T. C. C. see page 70.

***BEGINNING—and Don't Miss It:***

**What do you know about staple cotton fabrics? On page 89 of this issue begins a series of articles on their constructions, finishes and uses. The series answers questions arising constantly in the minds of most textile men —including the oldest of old-timers. It offers a means of education which is the equivalent of many years of practical experience. We urge our readers not to miss a single installment of this important contribution to textile literature.**

**What Is Cotton?**

The answer to this question as determined by two scientists at Boyce Thompson Institute is given in words and pictures. (Page 74.)

**Reducing the "Waste" Line:**

One test of the overseer's ability is the degree to which he can reduce preventable waste of cotton in his department. A mill man outlines the methods which he uses to good advantage. (Page 75.)

**Ready Reference:**

Not the least of the advantages of graphic charts is the fact that they prevent buried records. As shown on page 84, charts aid greatly in the control of sizings in the cotton mill.

**Silk Soaking:**

New developments in soaking silk to be used in the manufacture of three-carrier hosiery minimize sleaziness and uneven stitches. For details see page 85.

**Printing-Machine Drives:**

A well-known textile consultant compares the various types of motor drives for printing machines, presents test results, and suggests ways in which the efficiency of the machines can be increased. (Page 86.)

**Smoky Chimneys:**

In the days of kerosene lamps they bothered all of us. Today they warn the operating engineer and fireman of boiler-room losses. However, that's less than half the story; for the rest, see page 88.

**Working Too Hard:**

More data on how many machines to assign a worker are offered on page 72. These useful facts are from the silk work assignment board, post-mortem.

**Cotton String's the Thing!**

Those who should know are predicting a continuation, maybe even an expansion of the cotton string vogue next summer. And the spinners are ready for it with various interesting novelty yarns, described on page 92.

**Stopping the Carriers:**

Mr. Miller adds another full-fashioned article to his series on hosiery machines and their operation. This time he both begins and ends a subject —spindles, complete in one issue. (Page 82.) He has postponed discussion of the new development, referred to last month, until next month.

■

## *Next Month*

**Vat Dyeing:** With certain types of mercerized cotton fabrics it is difficult to obtain good penetration when dyeing with vat colors. A novel method of processing such materials will be described.

**From Japan:** Not imports of textiles this time, but a device which one of our correspondents noted on cotton slashers in a Japanese mill. It is said to give better penetration of the size.

**Steam and Stokers:** Automatic stokers solved the problem of a Long Island dyeing company which could not get enough steam, and was contemplating new boilers of higher ratings. (It still has the old boilers!)

**That Let-Off:** On modern looms it is possible to unwind the warp smoothly and evenly, as Mr. Moberg will explain next month.

**Laps Must Be Even:** In December we asked readers to complete a trouble-shooting guide for the elimination of unevenness in cotton picker laps. Next month it will be stated that a very fundamental cause of unevenness calls for measures seldom adopted in the picker house.

# BEAUTY IN THE WARPING ROOM

Young-Phelps Co.

*Occasionally the artist in the photographer catches a view of commonplace things that discloses a spirit of beauty in them that is often missed by those who are in daily contact with them. The above composition of line and shade may give the woolen warp dresser a new vision of the impressiveness of his work. And it is but one of the many textile operations much appreciated by artists who are inspired by industrial scenes.*

# TEXTILE PERSONALITIES

TWO of the Arringtons who helped build Union Bleachery, Greenville, S. C.—President John W., Sr., and Treasurer John W., Jr. The other two sons, Vice-President Dick and Assistant-Treasurer Nelson C. were not available when our photographer snapped the picture.

Union Bleachery, under the guidance of the Arrington family, has always been considered one of the most up-to-date and progressive plants of its kind in the South. The latest forward step included a deal with Aspinook Co., Jewett City, Conn., whereby a new concern, Palmetto Print Works, was organized to print and finish slackings and rayon fabrics. Four printing machines and other equipment have been installed in the present bleachery buildings.

At the age of 21 Mr. Arrington, Sr., was treasurer of a cotton mill in Richmond, Va., and a few years later helped organize a mill at Reidsville, N. C. He saw the need for a bleachery in the South, and, in the face of failures by two other groups, organized Union Bleachery, which from the first grew steadily. Mr. Arrington's hobby is game fishing off the Florida coast.

THIS year a man still active in the woolen business will celebrate his 80th birthday. Last October marked his 60th anniversary in business, for in 1875 he joined C. H. & F. D. Blake at 62 Worth St., then selling agents for Farr Alpaca Co. The mill made alpacas and brilliantines for linings and dress goods and sold all their goods to importers who put their own tickets on them! This man bought his 60th November commutation ticket from Orange, N. J., to New York City, last fall. His name has been signed to many letters and articles in publications covering many fields. He wrote on "government credit" in 1877 and on "Sharing the Wealth" in 1912.

The man is Joseph D. Holmes. After his apprenticeship with Blake he was successively with Schaeffer, Schram & Vogel (25 years), with his brother, the late Francis Holmes, and with L. F. Dommerich & Co. He now maintains an office as mill consultant at 225 Fourth Ave. He was agent for 35 years for Thomas Kitson's Stroudsburg Woolen Mills and recalls vividly how Mr. Kitson in 1898 set a record of 6 hr. and 4 min. for manufacture from wool on a sheep's back to a suit on a man's—and they all dined on the mutton that had grown the wool.

Mr. Holmes has lived in Orange since 1870 and Orange knows him—not as a woolen mill agent, but as a public-spirited citizen. He has been a member of every Board of Trade, Merchants Association, or Chamber of Commerce in Orange; when on the Common Council he had name of "Poor Farm" changed to "City Home"; he was chairman of the Committee of 50 which in the old days reduced saloon licenses from 114 to 73; he gave to Orange Y. M. C. A. a handsome building for the colored branch; he has worked for 36 years to have all passenger ships equipped with life rafts; he suggested and made effective the double-decking of the Queensboro Bridge (New York); he is still working for the fireproofing of old-law tenements in New York; he is now proposing use of the latent heat of the earth by creation of artificial "Fumaroles" near volcanos for production of steam and electric power; he is urging flexible work-week to assure maximum employment.

HE'LL talk hosiery—any time! And, if you hit him right, he may tell you some interesting things about the development of hosiery standards. He'll talk golf too—that's his secret of keeping fit. And he might even join in a football conversation. But his chief interests outside of business are his family, his friends and the New Rochelle (N. Y.) Hospital, of which he is a trustee. Ask Roy Tilles about hospital efficiency and you have his attention at once.

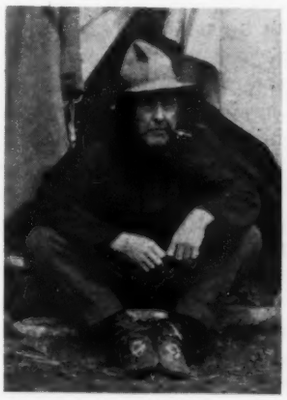
The textile industry knows him best as Roy E. Tilles, vice-president and general manager of Gotham Silk Hosiery Co. Yet Mr. Tilles divides his energy over a wide range of activites. He is a vice-president of the National Association of Hosiery Manufacturers, and member of its Standards Committee; he is also a vice-president of Textile Color Card Association of America.

Any hosiery man will tell you what he has done to make the American woman "Gold Stripe conscious." For his own part, Tilles shuts up like a clam when it comes to publicity about himself. And that explains the accompanying photograph; our camera Sherlock caught Mr. and Mrs. Tilles offguard recently on the boardwalk at Atlantic City.

Mr. Tilles doesn't believe in talk—he prefers action. That is as true today as it was years ago when he left his native Arkansas and, began his long career with the Gotham company. But he never permits his very keen aptitude for work to dull his zest for living.

Over his desk hangs the slogan: "Results—not excuses." He expects others to follow that rule, even as he follows it himself.

OFF the Florida coast is a spot called Cluett Key. In the textile industry is a process called Sanforizing. Each, of course, is named for its discoverer, Sanford Lockwood Cluett. Probably it is from his ancestors, who came over on the Mayflower and discovered Plymouth Rock, that Mr. Cluett inherits his proclivity for discovering things. Still a student at Rensselaer Polytech, he discovered a new method for solving higher equations, a new design for chronographs, and new facts concerning exterior ballistics. Next, as an officer in the army, he discovered a new way of constructing canal locks. A civilian again, he discovered how to make a vertical-lift mowing machine. Entering the textile industry, he became vice-president of Cluett Peabody & Co., and discovered the preshrinking process which bears his name.



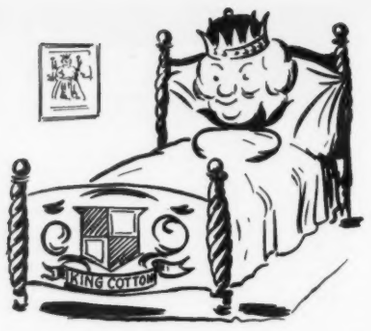
Sanford L. Cluett

But one must have some relaxation, and in his spare moments Mr. Cluett has amassed a collection of medals for sharpshooting; hunted big game; fished in fresh water and salt; interested himself in painting, sculpture, and numismatics. In the midst of all this he somehow has found time to marry and raise a family, gain recognition as an authority on local history, and attend the Episcopal church on Sundays. Born in Troy, N. Y., on June 6, 1874, Mr. Cluett still makes that city his home when he is not off on some voyage of discovery.

# *King Cotton*

## Can be cured . . .

## A banker says so




***By Fred W. Shibley***

*Vice-President, Bankers Trust Co., New York*

◆ *Mr. Shibley has been observing industry in general, and the textile industry in particular, for a great many years. His analysis is a threefold one: that of a banker, a business man, and an industrial doctor. Cotton manufacturers will do well to study his diagnosis and to try the cure he recommends.*—Editor.

SINCE 1930 when Dr. Murchison diagnosed the case of Old King Cotton, who had been failing steadily throughout most of the roaring twenties, the old gentleman has not gained materially in strength. There is no question that he has lost considerable spindle and loom weight since then, which should have made him somewhat lighter on his feet, but the seepage of life-blood through working capital depletion appears to have counter-balanced all gains.

In his book, "King Cotton Is Sick," the good Doctor wrote out several prescriptions for him, some of which never got as far as the drug store, while those that were filled were never thoroughly tested by the patient, probably because he had experienced a brief turn for the better in the summer of 1933. He picked up so suddenly and so vigorously when the NRA jacked up his inventory values, that the old monarch began to believe that he was himself again. As is well known, this inflated prosperity quickly flattened out and in 1934 he had a violent relapse that made his situation look beyond the Doctor. At the present time his friends are convinced that he acts much like a man with a bad heart and high blood pressure, one subject to ups and downs, to whom anything may happen. Nevertheless, due to the strength of a natural vitality, like Old Man River he just "keeps rolling along."

It is pleasant to observe that Dr. Murchison has been engaged as president of the Cotton-Textile Institute to devote his entire time and attention to his distinguished patient. No one knows King Cotton's failings better than he. Undoubtedly he is the right man in the right place. It is the earnest hope of the industry that he can get his patient profit-minded enough to listen to reason and to try to conduct himself like a sensible industrial being, renouncing such outstanding frailties as over-production, night running, etc., and adopting certain pursuits such as market research, leading to wiser policies of merchandising and distribution.

King Cotton is sick and has continued in ill health because he has lacked the sense to look after himself properly. He grew too fast during the war years, believing there was no limit to the consumer appetite for cotton fabrics. No one should censure him for this. The vast majority of the American people were caught long of optimism in 1920, exactly as they were in 1929. His failings have been always essentially human. Primarily he was not a dweller in cities. The mill village was his village and his home was the house on the hill. He was wrapt up in his home town, his own people and his own way of doing things. He was educated and trained in the science and arts of production, not in distribution. Markets meant the Worth Street commission houses and converters, not 130,000,000 consumers throughout the country with individual personal tastes, desires, and purchasing capacities. He never has visualized adequately, through the spectacles of research, those mysterious consumers who are so important in the minds of his successful industrial brothers.

### *Below-Cost Selling Inexcusable*

Nothing has contributed more to the misfortunes of King Cotton than the unethical, unsocial, and uneconomic distributing practice of selling below cost. There may be some justification for such an unfair trade practice when a manufacturer or distributor has his back to the wall financially and must convert his inventory into cash at whatever sacrifice; but as a means of killing competition and maintaining an uneconomic volume of production it violates every primary principle governing fair business practice. No industry is stronger than the sum of the strength of its members. No trade practice does more to sap the general strength than selling below cost. It appears that while the Constitution of the United States guarantees every citizen the right to life, liberty and the pursuit of happiness, it does not guarantee that the manufacturer who pays a fair price for his raw material and the labor he employs shall receive in compensation a fair price for the merchandise he produces. There is no clause in the Constitution that states it to be a social and economic offense to sell goods below cost, "with the intent and with the effect of injuring a competitor and where the effect may be to substantially lessen competition." The evil is recognized generally, but the difficulty of defining what constitutes cost and what exemptions should be made in so complex a producing and distributing system as exists in this country, renders a just solution of this unfortunate trade condition improbable in the near future.

The cotton textile industry, however, must continue to exist with the conditions as they are in its present economic environment and cotton manufacturers must operate in adjustment with these conditions, regardless of how fatal to profits they appear to be.

No matter how depressing the deplorable, unethical and uneconomic factors which exist in the cotton textile industry, many of which are common to most American industries, certain encouraging factors exist, the most remarkable of which is the fact that many manufacturers of cotton textile fabrics have made profits right through the depression by exercising intelligent thinking along sound production and merchandising lines. Moreover,

several of these outstanding manufacturers have taken advantage of the times to reorganize their factories and to replace worn and outmoded machinery with the last word in modern equipment. They believe that for some years to come they are going to be squeezed between the devil and the deep sea of high material and labor costs on the one hand and lower sales prices on the other, and they are prepared to meet these adverse conditions realizing that if consumer purchasing power is to be increased, wages must be the best that the sales dollar will permit, and that sales prices must be such as to make possible an increased distribution of their products.

This successful minority of cotton textile manufacturers has demonstrated its wisdom by maintaining at all times a strong working capital position which has enabled it to take advantage of low costs for materials purchased and to hold its products for favorable sales prices. There is no industry in which ample working capital is a more desirable asset than cotton textile manufacturing and converting. It is in fact the life blood of these industries. A cotton textile manufacturer without adequate working capital is the producer of a product whose cost and sales prices he cannot control. For such a man necessity drives and always he must stumble along, getting weaker as he becomes progressively anemic.

This shortage of working capital must assume a major position in the constructive thinking of every manufacturer who is working-capital shy. Such constructive thinking will reveal the fact that lack of working capital is a primary cause of profitless sales prices, the curse of the industry. Even buyers look at distressed merchandise askance. It means no dividends to stockholders, low wages, semi-worn machinery, frozen bank loans and a discouraged management. "In all your getting, get understanding" is a wise ancient saying. In these present times, the words "and maintain a strong working capital position" would add substantial strength to the proverb. The cotton textile manufacturer who cannot be classed with the successful minority above referred to, should face his facts like a man, look for help from neither Government nor trade associates, but make up his mind to solve his own problems, re-establish his working capital position, cut his processing costs, improve his mechanical equipment and only produce what he can sell without entailing a loss.

If he shall pursue such a policy he may have to curtail production for a time until he can get his operating costs in better shape, but if he possesses the merit to command success he will get there in due season.

There are as good brains in the cotton textile manufacturing industry as in the majority of other American industries. The luck has run against the manufacturer. He was betrayed by his prosperity in the good years into paying out too much of his earnings in dividends and running his machinery too long.

Profits today can be earned only with first-class mechanical equipment capable of being operated at high speed.

The cotton textile manufacturer has made the further mistake of being quantity-production-minded. Quantity production is a two-edged sword with a reverse action. It can smite the smiter. It is fine in fair weather, but a scourge when the going is bad. Sales at a profit, no matter if small, are the only true measure of production. All else is excess inventory, the breeder of distressed merchandise. In fact, he has made many human mistakes, but if he will admit his errors and resolve to get hold of his situation and control it, he can make a success of his individual enterprise, even if many of his competitors continue their foolish, unsocial and uneconomic ways. It is evident if his company is operating at a loss that something is wrong somewhere and therefore it is of the utmost importance that every function it performs and every human being who performs these functions should be challenged in the endeavor to find the seat of the trouble so as to discover what is necessary to be done in order to stop the loss and reverse the trend.

It would be well for this individual manufacturer who has determined to get control of his situation to begin his thinking somewhat along the following lines:

Cotton is a raw material that is only a few economic removes from the soil. In consequence it must be considered a product easily produced and of plentiful supply. Such a material, destined to serve a humble if useful place in consumer requirement, will sustain only low processing costs, with moderate overhead, sales and man-

## Mr. Shibley Says:

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***"There are as good brains in the cotton textile manufacturing industry as in the majority of other American industries . . ."***

***"Profits today can be earned only with first class mechanical equipment capable of being operated at high speed . . ."***

***"It is best to set up the profit factor as the first item in the cost dollar and determine to fight for this small item to the last ditch . . ."***

*Underwood & Underwood*

agement expenses. Moreover every item of expense, every employee and every machine must pull a fair share of the load, if profit is to result. Most of these operating and overhead expenses are controllable. Certain others are not. Real estate and other property taxes fall upon the rich manufacturer and the poor alike. The tax assessor is the creature of law, one not always permitted to employ reason and intelligence. Insurance is another definite fixed charge as are capital stock taxes and other such gleaners of state income. Depreciation may not be avoided as a definite manufacturing fixed expense always operating or obsoleting. Federal and state income taxes lie in the background waiting to pounce on profits if visible or capable of being made visible. Employers' liability insurance is a fixed overhead expense and presently social security taxes will come to join this galaxy of overheads in the form of unemployment insurance and old age pensions, crying to the others, "Move over and let us into the sales dollar bed with you."

### *Constructing the Cost Dollar*

If our manufacturer is not discouraged by the magnitude of these persistent and implacable overhead demands, he will proceed to estimate possible sales for the year and on that fundamental basis construct the items of his cost dollar other than fixed overhead expenses.

Raw material will demand the largest space in the picture, somewhere between sixty and seventy cents of the cost dollar, depending upon the current price of the staple. Then comes direct labor, the second heaviest cost. Our manufacturer knows it is to his interests to pay his workmen the highest possible wage, but he realizes that labor can have allotted to it only such a position in the cost dollar as the sales dollar will permit. Further claimants for space in the cost dollar are indirect labor, sales and shipping expenses, administration, interest on borrowed working capital and minor general expenses.

So far nothing has been said about profits, and it is safe to say that our manufacturer up to this point has thought nothing about profits while constructing his cost dollar. That is one of the reasons for the continued ill health of our old friend, King Cotton. It would seem that a majority of cotton textile manufacturers are not primarily profit-minded. The day's work is always first in their minds, to keep the mills running, to keep labor employed, to operate as many spindles and looms as possible, trusting to the unseen powers that at the end of the period when the books are closed and inventory taken, a profit will result.

The better plan is to think in the beginning of profit and so plan the cost dollar, in relation to the sales dollar, that a profit shall result. It is best to set up the profit factor as the first item in the cost dollar and determine to fight for this small item to the last ditch. In the final analysis the cost dollar, including profit, must be fitted into the space permitted by the one hundred cents of the sales dollar, a job worthy of the best intelligence of any man.

One thing is certain: If the cost dollar when first assembled is in excess of one hundred cents, the place to mould it to conform to the sales dollar is not in the office, but out in the factory on the one hand, and in the sales market on the other hand, for there is no sales dollar which cannot be improved upon if given proper executive attention.

Our manufacturer should get together a small committee consisting of the best brains in the organization and start at the mill door where the cotton enters and follow the path and the processing of the staple from the picker room to the shipping room, placing every human being, every machine and every mechanical process under microscopic investigation so as to determine whether or not every observed function is being performed efficiently and economically. The results of such an economy journey through the mill will amaze him. He is practically certain to discover inefficiency in machines and their operation which can be improved at a small capital expenditure. He will find two men doing one man's work in certain places. He will discover twistings and turnings in the flow of material and without a doubt he will find poor timing of the flow of the material, all combining to increase costs. This will result in a plan for scheduling and timing the flow and processing of all orders to the point of completion. After such an intensive study of operating costs and processing together with a meeting of minds of the higher executives, standard costs may be established with assurance that they represent true standards by which to measure actual costs.

When our manufacturer knows, as a result of such a study, that his organization is efficient, his machinery in good condition and his operating costs as low as he and his associate executives know how to reduce them, he has got solid ground under his feet and is in a strong position to either assist or talk turkey with his sales department or his commission agents.

It has been my privilege during the last year to observe intimately the operation of exactly such a program and to cooperate in an advisory way with the executive management which put it into effect. This was a New England mill producing rayon and cotton fabrics. The first thing that had to be done in this particular case, was to trim ship by eliminating at whatever capital cost all idle property expenses; then to check cash losses by declining to accept orders for goods which entailed shipping dollars as a present to bonus the sale of such merchandise; then to make an economy study as above outlined; then to reconstruct and improve certain machines which demanded attention; then to plan and route production on a definite time schedule which would permit shipments within the time specified by the sales department; and then finally to put the entire operations under budgetary control with a monthly system of analysis.

The actual results in the last six months of the year have been most encouraging. First, cash losses began to decline materially. Then they disappeared. Then interest charges were earned and finally profit emerged, over and above depreciation. As is well known, prices for cotton and rayon gray goods have not been increased materially through this period. Now everything looks improved because the business of the corporation in question has come up out of a sea of red ink and is manifesting its ability to make real profits when stripped of all extraneous expenses and given the proper tools and guidance. Moreover, its working capital is in a healthy condition.

Nothing but plain common sense thinking was employed in this improvement program and nothing of an extraordinary nature was done which leads me to believe that Old King Cotton may not be as sick as he is supposed to be and that all he needs is to turn away from the absurd futility of selling below cost and to exercise his brains a little more in the constant study of his operating expenses and his ever-changing merchandising and distributing problems. In brief, King Cotton can be cured.

***DURING all the years we have been identified with the textile industry, we have heard ardent wishes that standard practice governing buying and selling could be developed. These wishes were always followed by sad regrets that such an accomplishment was probably impossible.***

***Unknown to many people, however, that is just exactly what has been achieved in cotton textiles—and it is to the everlasting credit of the associations mentioned in the accompanying article, and of the individuals who served on the Joint Committee on Worth Street Rules.***

***We can think, at the moment, of no more practical evidence of the possibility of cooperative effort. That it was accomplished in one of the most controversial phases of commercial relationships makes it all the more remarkable.***

***This work has been going on for years—and the revised compilation mentioned here is a culmination of this effort. Worth Street Rules will serve as a monument to the business statesmanship of the leaders in this industry.*—Editor.**

# *Worth Street Rules*

## Coordinate trade practice in buying and selling

COORDINATION and revision of the various trade customs underlying trading in cotton textiles, and their compilation and publication under the title "Worth Street Rules—1936" have been achieved by a joint committee representing 11 interested associations. The rules fall into four general classes: (1) Standard Cotton Textile Sales-Note, as amended to become effective Jan. 2, 1936; (2) The Specifications: including those which have been approved by representative groups within the industry; (3) The machinery for arbitration provided in the Standard Sales Note; (4) Definitions and Trade Customs: representing those customs not practicable or desirable to incorporate in the Sales Note or Specifications but which generally are accepted as a basis of trading.

As is pointed out in the foreword to the book, the sales-note and specifications nearly always are considered together, but not everyone realizes that the arbitration machinery and trade customs are part and parcel of the same thing.

The compilation of the revised Worth Street Rules was described as "an accomplishment of inestimable value to the industry" by W. Ray Bell, president of the Association of Cotton Textile Merchants of New York, acting as agent for the joint committee at a conference of newspaper and business paper representatives. "It is practically a text book of approved market practice and its universal application will definitely fix the level of all transactions on a uniformly fair basis," said Mr. Bell. He also pointed out that the conclusion of the work is the best evidence "that cooperative action, if properly harnessed, can still secure excellent results." The rules, he emphasized, deal entirely with practical matters in a practical way, and are in no way based on theoretical or hypothetical calculations.

Likewise, the work was hailed by Leavelle McCampbell as "a cooperative achievement of which this industry may well be proud." He was chairman of the group from the Association of Cotton Textile Merchants of New York which served on the joint committee. He added that it is fitting that that association, under the leadership of Ray Bell, should have played an important part in formulating these rules, "for their practical character is in keeping with previous successful efforts of this group to simplify textile trading and to promote textile welfare."

Among the many individuals who have participated in this undertaking, special credit was given to Henry Lauten who represented the converters' group as chairman of the committee from the Textile Fabrics Association; to Harry Burton, chairman of the Fine Goods Committee of The Cotton-Textile Institute; to Robert Austin of counsel for help in solving legal problems, and to Harold Holmes, who is responsible for the excellent English in which the documents are couched.

The associations which cooperated in this work include: Textile Fabrics Association, Cotton-Textile Institute, International Association of Garment Manufacturers, Union-Made Garment Manufacturers Association, American Cotton Manufacturers Association, National Association of Cotton Manufacturers, New Bedford Cotton Manufacturers Association, Wholesale Dry Goods Institute, National Association of Purchasing Agents, Textile Brokers Association, and Association of Cotton Textile Merchants of New York.

# *Glass Textiles*

## Offer interesting possibilities for variety of special uses

*A step ahead of fashion, this young woman wears a hat crocheted from 100% glass yarn. The purse she is holding was knit from the same material.*

ONE of the marvels of our childhood days was a collection of textiles woven from glass, which an older member of the family had acquired in France. It was difficult to decide which of two items was the more marvelous—the glass lampwick or the multicolored glass necktie. And so, when about a year ago we learned that Owens-Illinois Glass Co. was experimenting in the manufacture of glass yarns, we did not get overly excited. Then at the Chemical Show, last month, Corning Glass works exhibited fabrics made from glass, and since then the daily newspapers have been playing up glass textiles in more or less spectacular headlines. Still not very excited, we looked into the matter further. Our preliminary report, from the information at hand, is that as a textile raw material glass does not constitute a serious threat to cotton, wool, rayon, and silk; but that glass textiles have interesting possibilities for a variety of special uses.

Glass wool—or fibrous glass, as the manufacturers call it—is made from about the same materials as is ordinary window glass. By a patented process, the molten glass is converted into strands as fine as 0.0002 in. in diameter and averaging 15 in. in length. It is now being produced in white, black, blue, and red; but a larger range of colors can easily be developed. The fibers are gathered in multifilament form somewhat resembling cotton sliver, spun similarly to cotton or wool, and wound in package form.

Owens-Illinois Glass Co., Newark, Ohio, is said to be producing about 1,000 lb. a week of the new yarn. Corning Glass Works, Corning, N. Y., is erecting a building to house a continuous glass-melting furnace with a capacity of 23 to 24 tons daily. Corning and Owens-Illinois will cooperate in research and development work in connection with glass fibers, and each will have the right to use the other's processes and inventions.

To the manufacturers of fibrous glass, the textile industry is just one of several potential markets for their product. A more promising field for immediate development, for example, is the use of the fiber for thermal-insulating purposes. A few textile mills have obtained samples of the yarn for experimental work, but as yet no fabrics have been produced commercially.

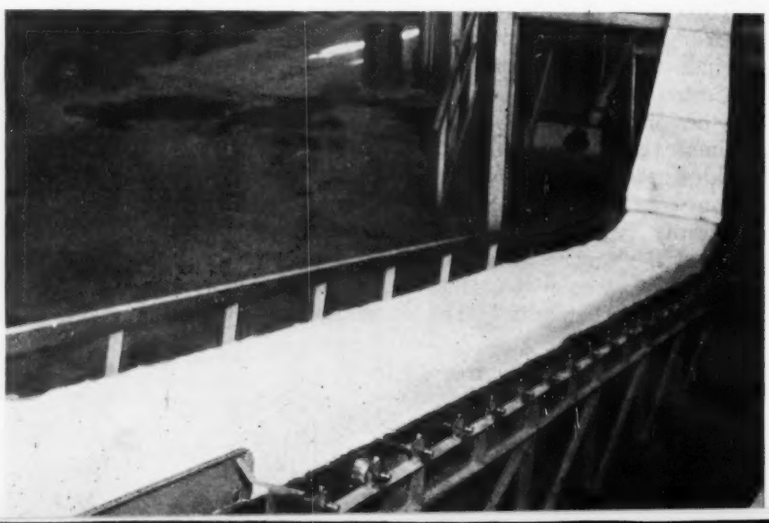
Among the advantages cited for fibrous glass are that it is fireproof, waterproof, mildewproof, moth-proof, and resistant to most chemicals. Other advantages are that it is light in weight; is a good insulator against heat, sound, and electricity; and will not deteriorate upon exposure to air. Since fabrics made from fibrous glass will retain most of these properties, it is easy to visualize the possibilities of fibrous glass as a raw material for filter cloths, fireproof theater curtains, and coverings for electric wires. Other possibilities are fireproof awnings, carpets, rugs, draperies, and upholsteries.

Some writers have predicted that glass textiles might be employed for making outerwear, particularly for cold-weather use. It appears probable, however, that the heat-insulating value of a woven or knitted glass textile is different from that of the fibrous glass in its original state. Furthermore, there is some doubt that fibrous-glass yarn in its present stage of development has sufficient flexing strength for use in apparel fabrics. Others have suggested that glass yarns offer decorative possibilities, similar to those of tinsel. One man was elated at the thought of glass bathing suits, but lost his enthusiasm when told that glass fabrics are not transparent. No definite information has been made public as to the tensile strength, flexibility, brittleness, or cost of fibrous-glass yarns, although it is stated that the strength of the rayon test is remarkably high. The finest yarn yet produced is said to correspond to 3½s cotton.

In one of the accompanying illustrations are shown, a hat and a purse made from fibrous-glass yarn. Other articles which have been fabricated—many of them by girls employed in the Owens-Illinois plant—include sweaters, doilies, table runners, hand-loomed rugs, etc. The glass manufacturers feel that fibrous-glass has definite possibilities as a textile, but that the product still needs furher improvement if it is to be used to any large extent. They have no intention of manufacturing fabrics commercially, but expect to confine their operations to the production and improvement of the fibrous glass material itself.

When glass textiles were introduced in France for the manufacture of wearing apparel, it was found that fine particles of glass were likely to be separated from the fibers and it was feared that these particles of glass would be deleterious to the wearer of the garment. Before a great deal more is done in the developmnt of fibrous-glass textiles, we recommend, therefore, that a thorough investigation be made to determine whether any particular precautions need to be taken to avoid danger from silicosis on the part of either the users of such textiles or those engaged in their manufacture.

*Not cotton, but fibrous glass produced by new Owens-Illinois Co. process*



*The first class of the Bigelow School of Craftsmanship.*

**Bigelow-Sanford has a practical, inexpensive plan for**

# *Employee Training*

FEW will question the desirability of making vocational training available to employees, but often there is difficulty in translating the abstract idea into actuality. Here is a simple, inexpensive plan that pleases the State, the manufacturer, and the students:

It all started when a member of the Connecticut State Legislature thought it wouldn't hurt his prestige a bit if he could have a trade school established in the town of Thompsonville. The Bigelow-Sanford Carpet Co. is by far the largest employer of labor in the town and was approached on the proposition. Acting as spokesman for the company, E. I. Peterson, superintendent, pointed out that a general trade school, which would teach carpentry, mechanics, etc., did not fit in logically with a community that was preponderantly textile. Further, work in the plant was so specialized that it would not be possible to allow the students to spend, say, one day a week in the mill and the rest of the time at school. Mr. Peterson stated, however, that the company would like to cooperate in any way possible and, after a series of conferences with State vocational officers, a plan was worked out.

The State furnishes an instructor, the company furnishes a classroom and mill facilities, and the students give their time and interest. Regular employees between the ages of 19 and 28, who have been with the company at least six months and preferably for a year, are nominated for the course by their overseers. A competitive examination of a general character is then given the applicants to reduce the number of nominees to the approximate 25 that can be handled. The students continue their regular work in the mill, but one evening a week, from 7 to 9 p.m., they receive classroom instruction from John G. Echmalian, director of the textile trade school at South Manchester.

On Saturdays the mill is closed and it is then that the students have an opportunity to learn the practical side. The company starts the class off with 2,000 lb. of wool and this is worked through the mill from one department to the next on Saturday mornings. The overseer of the particular department in which the class is working is present and gives a talk on the functions of his department. Thus, one overseer will explain the properties of the various types of wool used, why certain mixes are made, and will supervise the students when they make their own mix. The same procedure is followed in the spinning department, etc., and it is of interest that the overseers get a real kick out of their rôle as teachers.

When the first class was started, the students chose the name "Society of Bigelow Craftsmen." A two-year course was planned, but this was later extended to three years, and the graduation of the first group was celebrated last April with a suitable banquet.

The advantages of the plan are that the students keep their regular jobs and do their practical class work on production machinery rather than small models, the State does not have to go to the expense of equipping a school, and the company has its employees trained in its own methods. A textbook has been developed that covers the following subjects: general consideration of textile fibers, textile calculations, woolen manufacturing processes, worsted manufacturing processes, axminster weaving, jacquard weaving, tapestry weaving, cams, designing, and dyeing.

No matter how good a plan may sound in theory, it is practically worthless if the students aren't interested. The best indications of the success of the venture at Bigelow-Sanford are that there has never been any attendance problem and the group that graduated last spring has formed itself as an alumni group, "The Bigelow Craftsmen," and has been doing post-graduate work on its own hook this winter. Each month the alumni group appoints two of its members to study some managerial function and then, after a discussion meeting, one of the company officials gives a talk. Thus, Mr. Peterson has spoken on problems of organization, the head of the personnel department on personnel problems, etc. It is realized, however, that it is a little too ambitious to expect to cover such subjects in a couple of meetings, and it is probable that next year an outside teacher will give a series of monthly lectures.

The company promises the students nothing in connection with the course and tells them that the mere fact of being a student doesn't mean that work in the mill can be slighted, that pay will be raised, or that promotion will be rapid. It merely tells them that they have an opportunity to increase their knowledge and that increased knowledge should benefit them. Promises or no promises, however, it is obvious that graduates of the course form an excellent reservoir upon which the company can draw when it needs to start young men on the path up to overseer and beyond.

# *Rayon's Golden Age*

## In Japan cut short by foreign tariff rise

*By Kiyoshi Taki*
*Tokyo, Japan*

WILL Japan lead the world in rayon manufacture in 1936? That is a hypothetical question, of course, and one which nobody could answer at this early date. However, such a development is well within possibility, and in view of that, the story of Japan's rapid rise in this industry merits careful study. It offers an interesting slant on the future prospects of the industry.

The history of rayon manufacture in Japan falls roughly into three periods: 1912-1925; 1926-1932; and 1933 to date. The first company formed to make rayon yarn was the Dai-Nippon Artificial Silk & Celluloid Co., which started a nitro-cellulose plant in 1912, but failed before reaching the stage of commercial production. The World War period brought a rush of new firms, most using the cuprammonium process, and most being forced to close within a very few years. In the general economic readjustment between the panic of 1920 and the earthquake of 1923, another group of companies rose; of this group three firms, all using the viscose process, are surviving and successful.

The earthquake disaster of 1923 gave a great stimulus to rayon yarn manufacture, as it seriously impaired the silk industry and weavers had to have yarn to continue their own business. The drop in exchange at this time also aided domestic rayon by making importation of the yarn difficult. The outcome was a decided expansion of the young industry; the four companies making rayon at that time represented a combined capital of Yen 36,000,000. As shown in the accompanying table, rayon imports to Japan reached their peak in 1926 and declined more or less steadily through subsequent years.

With the opening of the second period, 1926-1932, the industry progressed rapidly. Demand showed steady gains; the outlook was so encouraging that the cotton spinning industry became interested, and various cotton spinning firms formed rayon subsidiaries. This expansion continued unabating, and in 1932 the industry comprised 11 companies, of which four were the pioneers and 7 firms of more recent origin. Of these seven newer units three were directly subsidized by cotton spinning firms, and three owned by financial and commercial interests. It is significant that even as early as 1930 the Japanese were awake to the growing competition between wool and rayon; this is evident in the fact that one of the 7 newer rayon firms, the Nippon Keori Kab. Kaisha, was a subsidiary of the Nippon Woolen Textile Co.

At this time the total capital of the entire rayon industry had increased to Yen 103,000,000. Favored with protective tariff and swelling exports the industry grew rapidly and profitably. Indeed, the period 1926-1932 was a sort of golden age in Japan's rayon industry. Imports were declining steadily and the whole picture was one of healthy activity.

As regards methods of manufacture the trend was definitely toward an all-viscose process industry. The only other process employed was cuprammonium and the only firm to employ that process was the Nippon Bemberg Kenshi Kaisha, which firm also used the viscose process. The table below illustrates the downward tendency of imports beginning with 1926 and the extremely rapid rise in exports over an eight-year period.

In developments of the first two periods several points merit note. A decisive increase in output was manifest in 1924 and again in 1925, the gain being 76% and 130% respectively. Yet that fades to insignificance beside the 1926-1932 period when production rose from 5,000,000 lb. to 64,000,000 lb. a gain of 1200% in 7 years. This rise indeed brought Japan close to the rayon level of the United States which leads the world.

During 1933 some observers in Japan began to warn of over-production, but there was no immediate ground for such apprehension since a world-wide market for Japan's woven rayon had opened and nearly 50% of the fabric output was exported. Yarn exports were only moderate. The remarkable increase in exports of rayon woven goods is indicated in the following figures: Fabric exports, including mixtures—1930, Yen 34,934,929; 1931, Yen 39,712,933; 1932, Yen 60,539,940; 1933, Yen 77,381,765; 1934, Yen 113,484,285.

Naturally enough, in view of these figures, the industry pushed its expansion further and 8 new firms, representing nearly Yen 175,000,000 capital, have been organized since 1934. Of this total, four companies include staple fiber in their production plans, and one company will make staple exclusively. The entire group is now engaged either in building plants or in preparing to build.

However, the present outlook is not so encouraging. The tariff barriers which are being erected in so many countries present a problem of real seriousness. As an immediate result of this development, rayon price in Japan has fallen from Yen 100 per 100 lb. to Yen 60.

***Production, Import, Export and Price of Rayon, 1918 to 1935***

| Years | Production lbs. | Import lbs. | Export lbs. | Ruling price in Yen per 100 lbs. approximately, highest and lowest (150 denier) |
|---|---|---|---|---|
| 1918..... | 100,000 | 77,000 | nominal | 600–550 |
| 1919..... | 140,000 | 75,716 | nominal | 900–800 |
| 1920..... | 200,000 | 79,805 | nominal | 1100–550 |
| 1921..... | 250,000 | 138,029 | nominal | 450–380 |
| 1922..... | 527,000 | 226,409 | nominal | 550–500 |
| 1923..... | 780,000 | 952,224 | nominal | 500–400 |
| 1924..... | 1,368,000 | 810,025 | nominal | 400–350 |
| 1925..... | 3,200,000 | 833,100 | nominal | 400–350 |
| 1926..... | 5,000,000 | 3,317,921 | nominal | 360–220 |
| 1927..... | 10,000,000 | 798,671 | nominal | 288–214 |
| 1928..... | 16,500,000 | 256,763 | 68,155 | 280–211 |
| 1929..... | 27,000,000 | 624,980 | 154,794 | 210–130 |
| 1930..... | 36,000,000 | 842,465 | 3,204,362 | 137– 92 |
| 1931..... | 46,764,000 | 1,168,000 | 2,575,000 | 105– 61 |
| 1932..... | 64,382,000 | 375,000 | 7,411,000 | 130– 90 |
| 1933..... | 90,428,630 | 511,600 | 9,042,000 | 134– 91 |
| 1934..... | 137,795,190 | 67,800 | 22,390,100 | 113– 87 |
| 1935*..... | 92,294,130 | 27,000 | 18,000,000 | 87– 52 |

*First six months only.

**The French mix their wool with**

# *Hair and Feathers*

*By Betty E. Hirschberg*

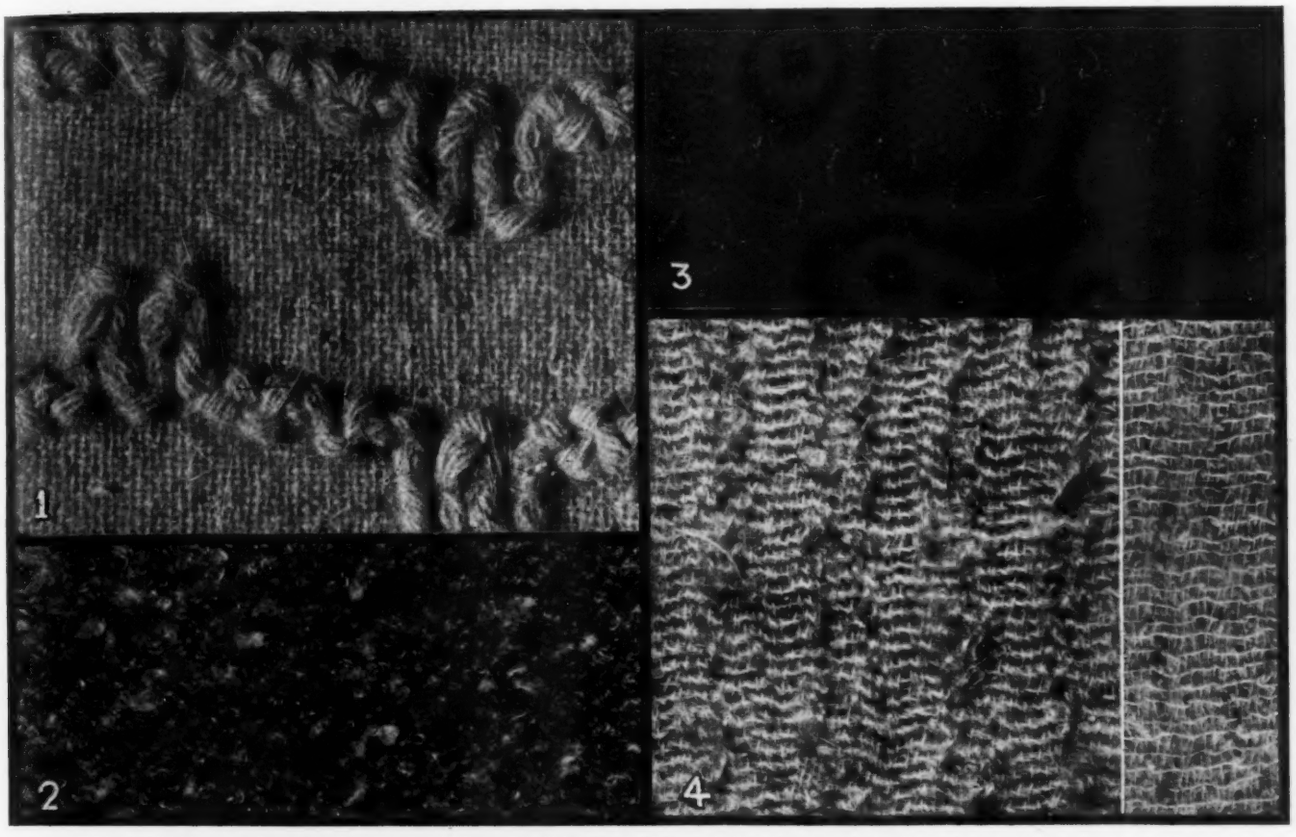



*Fig. 1. Ursalya Cordonnet (Meyer) featuring bear hairs. Fig. 2. Billets Doux, featuring feathers in knitted wool. Fig. 3. Zardana (Castelain), with mohair boutonnés. Fig. 4. Arbar (Chatillon Mouly Roussel), a hairy stripe on net ground, with backing similar to matelasse shown at right.*

MIXED materials still play an important rôle in French fabrics. Cellophane, metal, down feathers, mohair are used as effects. Metal yarn, chromed and colored, is worked up in combination with Cellophane. Mohair is used in the most fanciful manner, in large or small loops, curls, little knots, thick-lying chenille, stripes, in black or contrasting colors, determines the character of the material.

Marcel Rochas shows interesting mohair fabrics with loosely woven loops like dense astrakhan, utilized in a brilliant deep blue for hip-length jackets. In another material the mohair forms a cord-like zigzag pattern. He uses fringed woolen fabrics for chic afternoon gowns and tailor-mades.

French fabric designers have been discovering new varieties of animal hair and fur for use in woolen materials. They have been using the hair of stone martens, muskrats, bears, and even squirrels. Marcel Rochas shows elegant black afternoon gowns of wool, on which these new hairs are arranged in small tufts about 3 centimeters long to form a regular pattern. It is surprising how much more vibrant and lustrous is the effect of these fur hairs than the contrasting hairs formerly used.

The popularity of the wool jerseys continues unabated. Among the novelties are double face jerseys, the reverse of which can be used for trimming purposes. The floating threads on the back are cut and form fringes. Formal patterns are transferred to jerseys and give them quite a tailor-made touch. Introduction of feathers into knitting yarns adds another feature.

E. Meyer & Co. have had success with their "Ursalya" line of woolens containing bear hairs woven in. *Ursalya cordonnet* has a strong relief of thick wool cords in zigzag which produce a braid effect. *Ursalya boutonné* is traversed by loops and tufts of mohair and *Ursalya natté* and *tressé* show designs in the form of plaits and braids.

New Meyer tweeds contain tufts in confetti colors. The weaves of some of them remind one of carpet patterns with their ribbed stripes and clouded flame designs.

Chatillon Mouly Roussel, Paris, feature woolens with strong relief, formed by mohair curls, tufts, pastilles or rayon stripes. The woolens woven exclusively for some of the couturiers show on a black ground multi-colored boutonné yarns recalling Byzantine decorations.

Rodier's woolen fabrics represent hand-weaving with patriarchal character of great simplicity. They look as if the hand-weaver followed only his own inspiration; the pattern is never repeated. The yarns are irregularly thick and thin; here is inserted a green, there an orange knot or flake stripe as a spot of color.

# *Chemical Magic*

## Changing of cotton to wool prophesied at annual meeting of A.A.T.C.C.

THAT in the near future we may accomplish true transmutation of fibers—that we shall be able to change cotton to wool, rayon to silk—was prophesied at the fifteenth annual meeting of the American Association of Textile Chemists & Colorists, held Dec. 6 and 7, in Chattanooga, Tenn. Startling in its implications, the announcement of this impending development climaxed a meeting at which notable, if less dramatic, progress had been reported in many fields of textile processing. Opening with a demonstration of the interesting effects obtained when fabrics dyed and printed with certain dyes are viewed under ultra-violet light, and ending with a discussion of the new developments in the application of vat colors on cotton piece goods, the technical sessions, from start to finish, evidenced the importance of chemistry's recent contributions to the industry.

On Saturday morning, William D. Appel, National Bureau of Standards, the first speaker, presented a paper by himself and Daniel A. Jessup, in which he described the results of an accelerated ageing test for weighted silk. This test consists of the exposure of fabric samples to the radiation from a glass-inclosed carbon arc under controlled conditions of temperature and relative humidity. A 20-hour exposure gives results comparable with those obtained on samples exposed for 240 days in a room and at a distance of 4 ft. from a north window. Test data indicate that the amount of deterioration is not determined by the percentage of weighting and that while some weighted silks deteriorate badly, others are as resistant to ageing as are some pure-dyed fabrics.

Progress made by the three research associates of the association in the chemistry of wool was reported by Dr. Milton Harris. About 12% of the wool molecule, according to Dr. Harris, consists of a cystine group ($COOH \cdot CHNH_2 \cdot CH_2 \cdot S \cdot S \cdot CH_2 \cdot CHNH_2 \cdot CHOOH$). The linkage of the two sulphur atoms of this group is the most reactive part. Treatment of wool with mild oxidizing agents causes a considerable decresae in the cystine content, and, while the physical properties of the wool do not show much change, the susceptibility of the wool to alkaline degradation is increased. About 9 to 10% of the wool molecule consists of an arginine group. ($NH \cdot NH_2C \cdot NH \cdot CH_2 \cdot CH_2 \cdot CH_2 \cdot NH_2 \cdot CH \cdot COOH$). Any reaction which takes place at this group affects the take-up of acids, dyes, etc., by the wool.

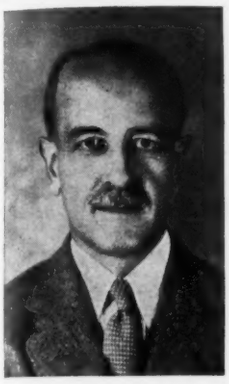
A brief, non-technical discussion of cotton printing, by Samuel I. Parker, Ciba Co., Inc., included an interesting picture of the history of printing in the South. The next speaker, John L. Crist, Calco Chemical Co., outlined some of the recent developments in the application of sulphur dyes. Among the points considered were the following: (1) production of purer, more uniform, and more soluble dyes; (2) use of sodium hydrosulphite and caustic or sodium bisulphite and caustic in addition to sodium sulphide in the application of the leuco types of sulphur blues to obtain bloomier and more level shades and to prevent surface oxidation and bronziness; (3) use of organic reducing agents in place of sodium sulphide to obtain more uniform and level dyeings and a softer finish and to prevent tendering of the goods; (4) use of ammonium sulphate and sodium bisulphite as exhausting agents; and (5) use of sodium bichromate and acetic acid (previously employed mainly on piece goods) in the aftertreatment of sulphur-dyed raw stock and yarns.

Reviewing some of the newer methods of chemical analysis, Dr. Irving W. Grote, University of Chattanooga, suggested that they should have definite applications in textile work. Among the methods mentioned are semi-micro analysis of various materials, colorimetric determination of metals, use of absorption indicators for the identification of chlorides, electrical conductivity and resistance methods for the determination of moisture, and use of oxidation-reduction indicators to determine intensity of the action of oxidizing and reducing agents.

Results of experiments to find whether the sulphur trioxide content or the total fat content of sulphonated products is more important were reported by Prof. Albert H. Grimshaw, North Carolina State College. According to preliminary experiments, it was stated by Professor Grimshaw, the $SO_3$ content is of greater importance as regards wetting-out power and stability towards acids, electrolites, and hard water. On the other hand, the tests showed that a high $SO_3$ content apparently has no advantages over a high fat content as far as regards stability to alkalis and dispersing power.

In a discussion of the conditioning of water for the textile industry, H. H. Morrison, Permutit Co., described briefly the methods and equipment employed. Among the more recent developments cited by Mr. Morrison are included electro-chemical feeding devices for adding coagulants to the water, use of activated carbon for removing of color, single-valve zeolite softeners of the fully automatic and manually controlled types, and manganese-zeolite filters for removing ferrous bicarbonate from the water.

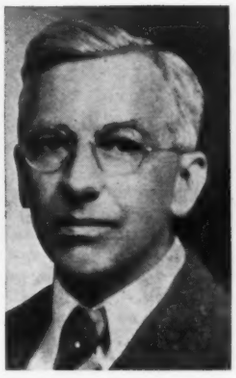
Reporting the results of experiments to determine the effect of various oxidizing and development treatments on vat-dyed cotton fabrics, Charles Seibert, E. I. du Pont de Nemours & Co., Inc., stated that with many dyes, use of a fatty alcohol sulphate instead of soap increases the fastness to light, the greatest increase being with those dyes which normally possess the least resistance. When sodium bichromate and acetic acid are employed for oxidizing, the light resistance may be decreased by too long a treatment, too high a temperature, or too high a concentration of the chrome; therefore it is recommended that the temperature be limited to 140° F., and not more than $\frac{1}{4}$ oz. per gallon of chrome be used if the treatment takes 5 min., or not more than $\frac{1}{2}$ oz. if the time is 3 min. Laboratory tests show that with most dyes the brightest and deepest shades and best light fastness can be obtained by simultaneous oxidation and development. Attempts are now being made to devise a practical method



*William H. Cady, president, A.A.T.C.C.*

*William R. Moorhouse, Treasurer, A.A.T.C.C.*

*Elmer C. Bertolet, vice-president, A.A.T.C.C.*



*Harold C. Chapin, Secretary, A.A.T.C.C.*

*A. R. Thompson, Jr., vice-president, A.A.T.C.C.*

for accomplishing this simultaneous treatment in the plant.

Six major factors which influence the stability of peroxide bleaching baths for cotton enumerated by D. J. Campbell, R. & H. Chemicals Dept. of the DuPont Co., are temperature, pH, type of alkali, material being bleached, water, and bleaching vessel. Of these factors, the pH and the type of alkali are most important. Sodium silicate ordinarily is employed as the alkali, and, with this, maximum efficiency is obtained at pH 8 to 11.

## *Applications of Synthetic Resins*

After tracing briefly the history and properties of synthetic resins, Dr. D. H. Powers, Rohm & Haas Co., Inc., described the various uses of these new products in the textile field. At present they are finding application as coatings for textiles, in reducing susceptibility to creasing, in producing fabrics which are more resistant to slippage, and in improving tensile strength and wearing qualities. According to Dr. Powers, it already is possible by means of the synthetic resins to impart some of the properties of wool to cotton, some of the properties of silk to rayon, and it is more than possible that in the future we may get true transmutation of fibers. Another possibility is the production of a yarn having a cotton-like core and rayon-like surface, and combining the advantageous properties of both cotton and rayon.

In a comparison of the advantages of regular vat colors and the water-soluble vat colors (Algosol dyes) for dyeing cotton piece goods, S. H. Williams, General Dyestuff Corp., first called attention to the fact that the Algosols are now available in a fairly wide range, which includes some dyes of Indanthrene fastness. Continuing, he stated that in the case of many light and medium shades, if all cost factors are taken into consideration, the Algosols dyeings are cheaper than the corresponding vat dyeings. Advantages of the water-soluble vats cited by Mr. Williams include excellent level-dyeing and penetrating properties; property of covering rubmarks, creases, neppy surfaces, and other faults; and comparative ease of dyeing by the continuous method.

On Friday evening, Joseph L. McEwen, National Aniline & Chemical Co., Inc., gave a brief resume of the properties and uses of ultra-violet radiation. In analytical work, the speaker recommended the use of monochromatic light rather than the mixed light ordinarily employed at present. Mr. McEwen then presented an interesting demonstration of the results obtained when fabrics dyed and printed with certain colors are viewed under ultra-violet light.

Some of the newer optical instruments and their applications in the textile industry for routing and research were reviewed by J. H. Schering, Bausch & Lomb Optical Co. After outlining the use of the microscope in determining irregularities in textiles and in fiber determination, Mr. Schering called attention to the recent microscopical studies by Farr and Eckerson on the constitution of the cotton fiber, the use of the polarizing microscope in determining cotton fiber maturity, the use of the ocular micrometer to determine cotton thickness, application of the textile projector and the silhouette projector for the inspection of knit and woven fabrics, uses of fiber-measuring apparatus of the wedge-ruler type, and the value of photomicrographs for keeping records. At the conclusion of his talk, Mr. Schering presented a motion picture showing the manufacture of optical glass.

## *Business and Pleasure*

Speakers at the annual banquet held Saturday evening were the Hon. E. D. Bass, mayor of Chattanooga; Prof. L. A. Olney, Lowell Textile Institute; and Dr. Robert E. Rose, E. I. duPont de Nemours & Co., Inc. Arthur R. Thompson, Jr., Ciba Co., Inc., presided. Dancing, entertainment, and a style show concluded the meeting, which was held under the auspices of the South Central Section, Harold Schroeder, Dixie Mercerizing Co., chairman.

Wm. H. Cady, U. S. Finishing Co., was elected president of the Association, succeeding Dr. Rose. Elmer C. Bertolet, Philadelphia Textile School, was chosen vice-president. Officers re-elected are: Arthur R. Thompson, Jr., vice-president; William R. Moorhouse, National Aniline & Chemical Co., treasurer; and Harold C. Chapin, Lowell Textile Institute, secretary. Harold M. Chase, Riverside & Dan River Cotton Mills, Inc., and Arthur E. Hirst, Pacific Mills, were chosen as councilors at large.

# *Looms per Weaver . . .*

## Data from the recent silk and rayon work-assignment study made public

*By L. P. Alford*
*Consulting Engineer, New York*

***ALTHOUGH** the work-assignment boards set up as a result of the famous Winant report are now officially in oblivion, it would be unfortunate if the data developed and the conclusions reached by the engineers which those boards employed should be permanently filed or irretrievably discarded. Engineering surveys in most branches of industry are far too few, and a report such as the one abstracted here ought eventually to be made a corner stone of a massive structure of industrial-engineering investigation and knowledge.*

*This particular report, which the chief of the engineering staff[1] for the silk board made public at a meeting of the American Society of Mechanical Engineers last month, discloses—as does every other report on the subject of work assignment—that no one knows just how much work can be assigned to an employee without causing unreasonable fatigue. The immediate result of the presentation of this paper was the establishment of an A.S.M.E. committee to consider the inaugurating of an all-industry study of this problem, to be participated in by engineering, medical, psychological, management, and labor groups.*

FOR the purpose of the investigation the principle of reasonable work assignment was declared to be: "A reasonable work assignment is an amount of work to be done in a given time, for a wage mutually satisfactory to worker and management, and capable of being performed by a worker of average skill in the time specified with an amount of free time sufficient for personal needs and the relief of fatigue."

From the foregoing principle it follows:

Rule 1: If the amount of work done is equal to the amount specified in the work assignment, standard times shall be calculated for the number of occurrences [listed for weaving in Table 1] observed. If the amount of free time so determined is equal to, or greater than, the standard, the work assignment shall be judged to be reasonable. If the amount of free time so determined is less than the standard, the work assignment shall be judged to be excessive.

Rule 2: If the work done is less than, or greater than, the amount specified in the work assignment, the number of occurrences that would have prevailed, if the actual work done had been equal to the work assignment, shall be computed. Standard times shall then be calculated for the number of occurrences as computed for the specified work assignment. If the amount of free time so determined is equal to, or greater than, the standard, the work assignment shall be judged to be reasonable. If the amount of free time so determined is less than the standard, the work assignment shall be judged to be excessive. (Rule 2 is the one which will usually apply.)

To apply these two rules it is necessary to establish standard times for elementary operations. Sufficient time-study information was secured in this investigation to set creditable standards for three classes: gum silk, plain; gum silk, satin; rayon-acetate, plain. These times are given in Table 1. They are based on composite information; that is, data were combined from all the mills where time studies were made. Items 14, 15, and 16 are not true elementary operations, but each can be expressed as a function of a group of elementary operations. Figs. 1, 2, and 3 give these relations.

For each of these charts it is believed that the shape of the curve is determined. It is unfortunate that the early termination of the work prevented the accumulation of more data to fix more closely the exact location of the curves. It is to be hoped that more research will be done on these three elements of work in weaving.

Two other items in the schedule of Table 1 require discussion. No values are given for No. 17 ("personal needs") and for No. 18 ("inactive time"). Taken together these items make up the free time of the operator to be used for personal needs and for the relief of fatigue. The author offers as a minimum standard for free time in silk and rayon weaving 12½% of the total time. This amounts to 60 min. in a 480-min. shift. As a matter of interest, the median value of the free times found by the time studies of silk and rayon weaving was 59 min. in 480 min.

Although the research staff did not report any method for determining a reasonable work assignment in advance, it did examine a number of formulas offered for this purpose.[2] The one given here is modified slightly from what seems to be the most direct and simplest of these various methodologies.

Two determinations are needed at the outset: the correct average amount of work which the weaver must do to produce 1,000 picks of the fabric on which a work assignment is to be set; the standard allowance for free time.

For any job, after the average number of minutes per 1,000 picks produced and the free time allowance have been determined, the work assignment of the weaver in thousands of picks is readily established for the work day whatever its length. The formula is:

$$\text{Work assignment in thousands of picks} = \frac{\left[\text{Minutes per work day}\right] \times \left[1 - \frac{\text{Per cent of free time allowance}}{100}\right]}{\text{Total minutes of work per 1000 picks}}$$

Total minutes of work per 1,000 picks includes the times for work while loom is stopped, while loom is running, walking to give attention, examining, and patrolling.

Example: Fabric, plain satin crepe.

| Operation | Minutes |
|---|---|
| Work while loom is stopped | 113.17 |
| Work while loom is running | 85.48 |
| Walking to give attention | 44.39 |
| Examining | 14.34 |
| Patrolling | 40.44 |
| Total | 297.82 |

The number of picks thrown is 249,000, and the minutes of total work per 1,000 picks thrown is

[1] Including also N. P. Cubberly, S. A. Hazen, C. C. Jessop, H. P. Losely, and J. A. Piacitelli.

[2] Including, probably, the one recommended by John J. McElroy (TEXTILE WORLD, December, 1934, page 98).

### TABLE 1—Elementary Times for Silk and Rayon Weaving

(Based on modal averages where possible, arithmetic means elsewhere)

| | Occurrence | Time in minutes: Gum silk Plain[a] | Gum silk Satin | Rayon acetate plain |
|---|---|---|---|---|
| 1 | Warp break in front of loom | 0.88 | 0.91 | 0.74 |
| 2 | Warp break in back of loom | 1.08 | 1.21 | 0.97 |
| 3 | Break by weaver | 0.83 | 0.83 | 1.05 |
| 4 | Defect front and back[b] | 0.19 | 0.59 | 0.66 |
| 5 | Twisted warp break[c] | 0.50 | 0.58 | ..... |
| 6 | Tie back[d] | 1.10 | 1.10 | 1.45 |
| 7 | Pickout | .... | .... | .... |
| 8 | Filling break | 0.28 | 0.57 | 0.37 |
| 9 | Change shuttle | 0.10 | 0.11 | 0.11 |
| 10 | Shuttle runout (spare) | 0.67 | 0.67 | 0.75 |
| | Shuttle runout (no spare) | .... | .... | 1.35 |
| 11 | Change and fill shuttle | 0.34 | 0.34 | 0.34 |
| 12 | Fill spare shuttle | 0.25 | 0.25 | 0.21 |
| | Fill spare shuttle and load magazine | .... | .... | 0.25 |
| | Place quill in magazine | .... | .... | 0.09 |
| 13 | Strip quill | 0.10 | 0.10 | 0.06 |
| 14 | Walk to give attention | (a function of work while stopped | | |
| 15 | Examine work and loom | (a function of total work) | | |
| 16 | Patrolling | (a function of work while running) | | |
| 17 | Personal needs | (a percentage of total time) | | |
| 18 | Inactive time | (a percentage of total time) | | |
| 19 | Miscellaneous work while stopped | .... | .... | .... |
| 20 | Miscellaneous work while running | .... | .... | .... |
| 21 | Preposition quill[e] | 0.10 | 0.10 | 0.10 |
| 22 | Doff cut | .... | .... | .... |
| 23 | Loomfixing | .... | .... | .... |
| 24 | Take up spare end[f] | 0.19 | 0.19 | 0.18 |
| 25 | Bang-off | 0.07 | 0.07 | 0.07 |

[a]Less than 140 denier.
[b]Such as tails, nibs, fuzz, etc.
[c]Any break of a warp thread where two or more threads pass through a heddle, and the repair is made by twisting or tying the broken thread onto its mate or mates.
[d]Missing warp thread replaced by end from spool.
[e]Taking quill from rack preparatory to loading shuttle.
[f]Operations in shortening spare warp ends—rayon warps principally.

297.82/249 = 1.195. Then the work assignment in thousands of picks per 8-hour day is 480(1 — 12.5/100) ÷ 1.195 = 351+. Therefore, the work assignment is 351,000 picks per 8-hour day.

The piece rate for the job is readily set to give the weekly earnings which are "equitable and agreeable for the work performed and the effort expended." To continue the example, assume that this amount is $27 for a 5-day week of 40 hr. Hence the piece rate = 27 ÷ (351,000 × 5)/100,000 = $1.54 per 100,000 picks, or, say, $1.50 per 100,000 picks.

After the work assignment has been established by the method given, the number of looms the weaver is to operate can be determined by the following formula:

$$\text{Number of looms} = \frac{\text{Work assignment per work day in picks}}{\left[\begin{matrix}\text{Minutes}\\ \text{per work}\\ \text{day}\end{matrix}\right]\left[\begin{matrix}\text{Loom speed}\\ \text{in picks}\\ \text{per minute}\end{matrix}\right]\left[\frac{\text{Loom efficiency}}{100}\right]}$$

The number of minutes in a work day is, for example, 60 × 8 = 480 min. for an 8-hr. work day. The loom speed is the number of picks thrown by the loom in one minute of full operation. The loom efficiency is the percentage of the full work day that the loom actually runs.

If a weaver is required to operate several looms simultaneously, an additional allowance must be made for interference time. Loom interference time is the time a loom is stopped waiting for attention by the weaver. The time necessary to be allowed for interference varies with the skill and speed of the weaver, and with the number of looms in the stand. The correct allowance can best be determined by careful time study and analysis of a sufficient number of jobs to give a creditable finding. One of the large silk mills where investigations were conducted has made such a determination and has embodied the results in a chart, Fig. 4.

This chart, Fig. 4, gives loom efficiency, expressed as a percentage of the possible maximum, that may be expected from loom stands of from two to nine looms, with hand-time percentages computed as follows:

$$\text{Hand time in per cent} = 100\,\frac{\text{Time for work while loom is stopped in minutes per 1000 picks}}{\left[\begin{matrix}\text{Time for work while}\\ \text{loom is stopped in}\\ \text{minutes per 1000 picks}\end{matrix}\right] + \left[\begin{matrix}\text{Machine time}\\ \text{in minutes per}\\ \text{1000 picks}\end{matrix}\right]}$$

The use of the formula is illustrated by the following example: Assume for a plain-silk-crepe work assignment 351,000 picks, work day 480 min., loom speed 140 picks per min., time for work while stopped 0.454 min. per 1,000 picks, machine time, 7.142 min. per 1,000 picks, hand time = 100[0.454/(0.454 + 7.142)] = 6%.

From this point on the solution is by approximation or a cut-and-try method. To continue the example: Corresponding loom efficiency from Fig. 4 for an eight-loom stand is 85.5%. By computation the number of looms is 351,000 ÷ [(480)(140)(85.5/100)] = 6.11 looms. Corresponding loom efficiency from Fig. 4 for a six-loom stand is 90.5%. By computation [351,000] ÷ [(480) (140) (90.5/100)] = 5.77 looms.

That is, a weaver should be able to operate six looms on the fabric specified at a loom efficiency of about 87% and throw 351,000 picks in 8 hr., with 12½% of the total time for personal needs and relief of fatigue.

*Fig. 1. Relation of walking and working while loom is stopped. Fig. 2. Relation of examining and total work. Fig. 3. Relation of patrolling and work while loom is running. Fig. 4. Relation of hand time and loom efficiency.*

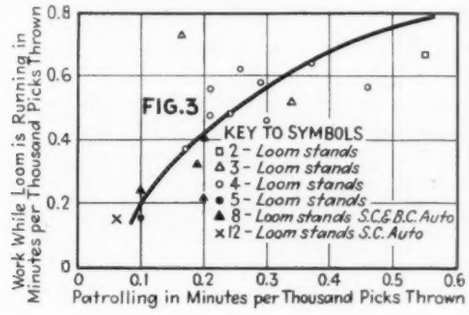
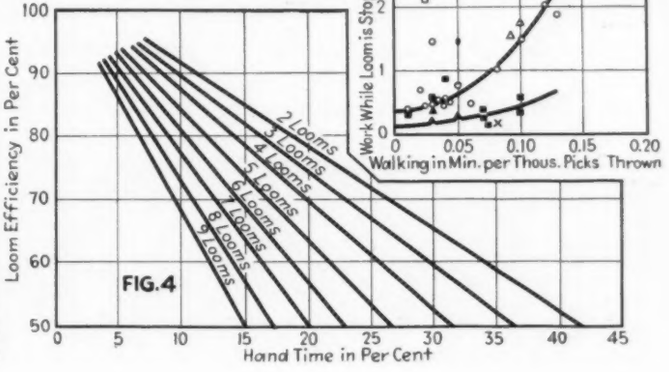


FIG.3
KEY TO SYMBOLS
□ 2 - Loom stands
△ 3 - Loom stands
○ 4 - Loom stands
● 5 - Loom stands
▲ 8 - Loom stands S.C.& B.C. Auto
× 12 - Loom stands S.C. Auto
Work While Loom is Running in Minutes per Thousand Picks Thrown
Patrolling in Minutes per Thousand Picks Thrown



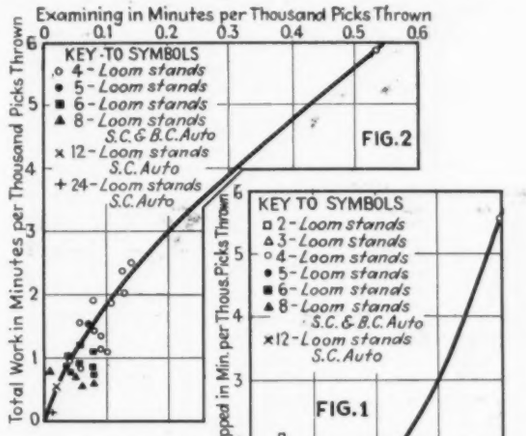



FIG.2
KEY-TO SYMBOLS
○ 4 - Loom stands
● 5 - Loom stands
■ 6 - Loom stands
▲ 8 - Loom stands S.C.& B.C. Auto
× 12 - Loom stands S.C. Auto
+ 24 - Loom stands S.C. Auto
Examining in Minutes per Thousand Picks Thrown
Total Work in Minutes per Thousand Picks Thrown

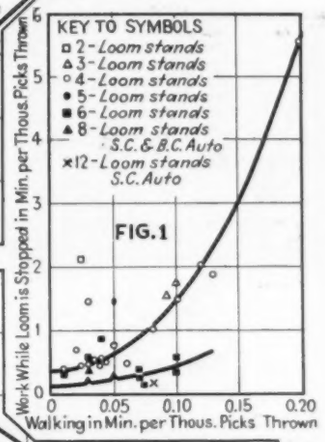


FIG.1
KEY TO SYMBOLS
□ 2 - Loom stands
△ 3 - Loom stands
○ 4 - Loom stands
● 5 - Loom stands
■ 6 - Loom stands
▲ 8 - Loom stands S.C. & B.C. Auto
×12 - Loom stands S.C. Auto
Work While Loom is Stopped in Min. per Thous. Picks Thrown
Walking in Min. per Thous. Picks Thrown

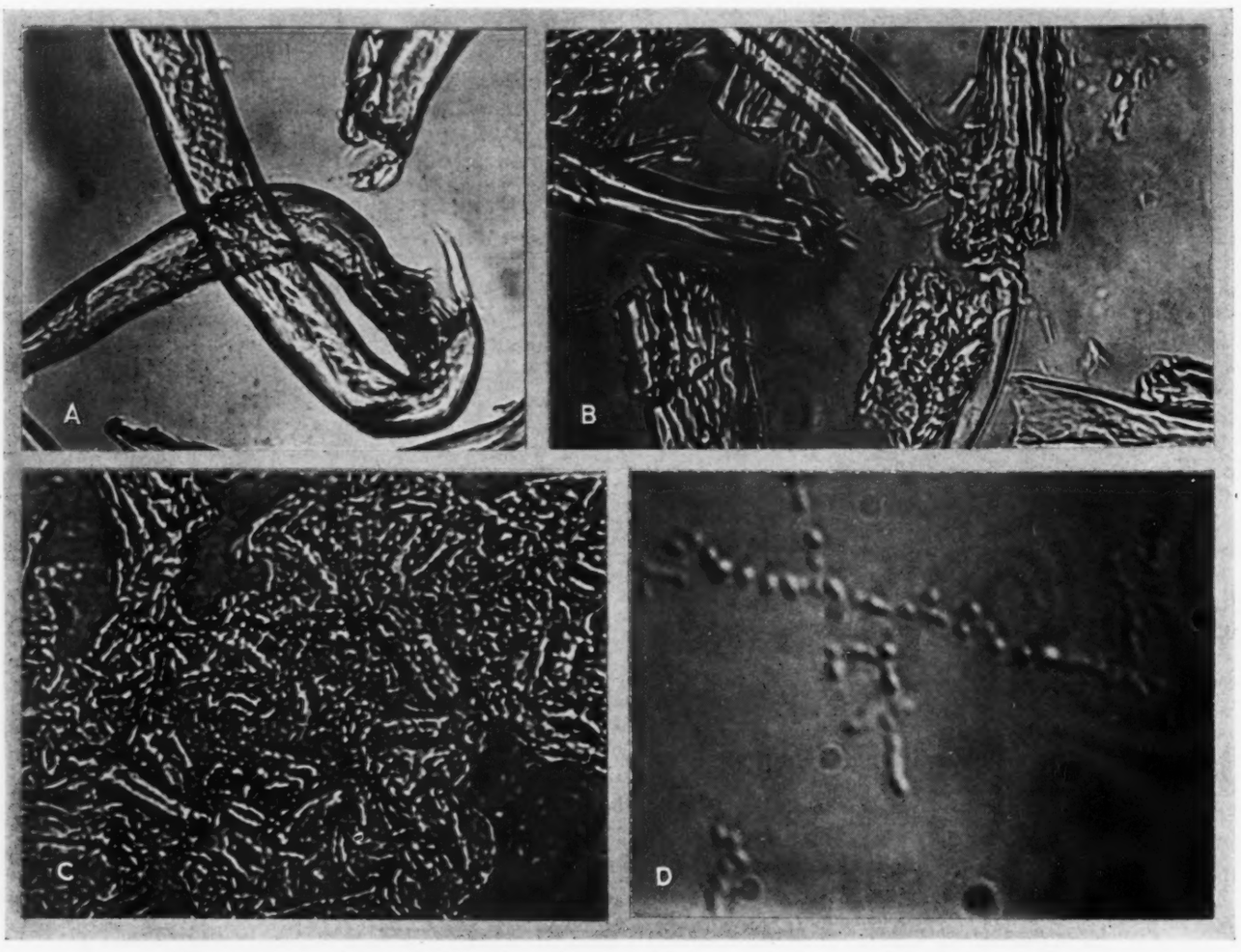
# WHAT IS COTTON?

## *Research at Boyce Thompson Institute promises definite answer to this question*

COMPLETELY upsetting our previously held ideas, the research now being carried out at Boyce Thompson Institute, by Wanda K. Farr and Sophia H. Eckerson, gives us a new conception of cotton fibers. Instead of thinking of cotton fiber as a homogeneous material, we can now visualize it as a structure built up of bricks and mortar. From the studies of these investigators, it now appears that the cotton fiber is composed of layers of fibrils, which are cemented together with a pectic substance. The fibrils, in turn, are made up of small cellulose particles which also are bound together by the non-cellulosic pectic material. In the outer portions of the fibril, the cellulose particles occur in the form of long bead-like chains; in the center portions, the particles occur both as short chains and separately.

Mrs. Farr and Dr. Eckerson have separated the cellulose particles from the pectic material, both mechanically and by treating cotton fibers with a pectic solvent, such as hydrochloric acid. Each particle measures about 0.0006 in. in length and is shaped somewhat like a football. The particles are readily visible under the microscope. In a solution of iodine and sulphuric acid they take on the characteristic blue color of cellulose. The pectic material is soluble in dilute acids and alkalis and can be stained with Ruthenium Red, which has no affinity for the cellulose particles.

The accompanying photomicrographs, which were supplied by Mrs. Farr, show the degradation of cotton fiber by treatment with hydrochloric acid. The original fiber is shown in Fig. A; in Fig. B, the pectic material surrounding the fibrils is beginning to dissolve, freeing the fibrils; in Fig. C the pectic substance binding the cellulose particles is dissolving; in Fig. D are shown the separated cellulose particles.




*Various stages in separation of pectic material from cellulose particles in cotton fiber*

As yet it is too early to predict the full effect of this new knowledge of the structure of the cotton fiber. It appears certain, however, that the investigations already completed, together with the further research now under way, will lead eventually to changes and advances in textile technique.

*Alert overseer is constantly on watch for ways to reduce unnecessary*

*By Robert Burgess*

# COTTON-MILL WASTE

IN taking cotton from the bale and transforming the fiber into yarn and cloth, both necessary and unnecessary waste occur. The waste which comes about from separating the fiber from its seed, leaf, and other extraneous matter can be considered as necessary. While this type of waste can be regulated to a certain extent by machine operations, the amount will be governed largely by the quality of the cotton being processed, by the degree of cleanness desired, or by a combination of the two. The amount of fiber which becomes waste as the result of these operations, being practically machine-controlled, presents no serious problem.

It is with the various subsequent processes where cleaning of the fiber is the principal feature that we get our waste problems. These operations are responsible for much of the unnecessary waste. Machine regulation will have little effect; the human element will be the controlling factor. Therefore the matter of unnecessary waste becomes a problem of guiding the actions of the operatives. It is a problem with which the overseer has a chance to show his skill and ability.

The amount of waste being made will depend, in large measure, upon the characteristics of the operatives; if they are naturally of a careful disposition, the waste made will, as a matter of course, be less than it will be if they are of a careless disposition. This being so, regulating waste is not a matter where the issuing of a general order will meet the situation. In most cases it will resolve itself into a matter of training the careless operative, rather than one of merely giving orders.

## *A Better Corrective*

Closer attention on the part of those whose job it is to see that the operatives do their work properly should take the form of the force of example, which, as a rule, is a far better corrective than all the orders that can be issued. For this training to be really effective in the matter of waste, it should be in line with the manner in which all things connected with the department are carried on. Waste should not be singled out specifically; but it should be given very careful attention. One of the essentials in controlling waste is the attitude of the overseer himself. Waste control is a matter of sufficient importance to require his personal supervision, and under no circumstances should this supervision be delegated to anyone else.

As the waste is collected and brought to some convenient place, the overseer should inspect it just as it is brought in; then, should any point require attention, everything will be fresh in the collector's mind and easily traced. Again, the fact that it is known that the overseer is attending to the inspection, and not delegating the job to someone else, will have its influence on the operatives.

## *What Inspection Tells*

A stated time each day for the collection of waste may be the proper thing where conditions are fairly satisfactory; but where they are not, it may be well to change the time of collection from day to day until the situation is well in hand. This should all be done with the well-defined purpose of keeping a careful watch on those who have given evidence that they need watching, as well as on all newly employed operatives, with a determination to train them to use the material with which they are working according to the overseer's ideas. Training, and not ordering, will prove to be the proper way to get these ideas carried out. During the inspection, the waste itself will tell what is going on; the size of the bolls of roller waste will show how the broken ends are being taken care of; the roving waste will tell just how the oper-

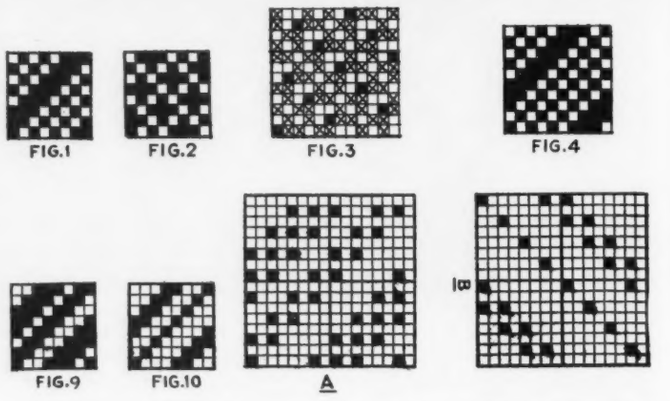
atives are handling that work and the sweepings will tell what is being carelessly thrown on the floor instead of being put into the proper receptacles. This inspection will give a good review of the day's proceedings.

There is also waste which comes from the processes between the pickers and the slubbers. In many cases but little thought is given to what takes place at these operations, owing to the fact that the waste made can be taken back to the picker-room and mixed with the regular cotton. While it may not do the fiber any material harm to be reworked, there has certainly been a waste of product, as well as the expense connected with the various processes through which the cotton has passed. Good management will see to it that there is just as little carelessness as possible at these operations.

A weaver on automatic looms has little occasion to have anything to do with the matter of waste or the amount of yarn that is left on the bobbin when it is ejected from the shuttle. However, there is need for careful inspection of these ejected bobbins. The collector should be trained to inspect them carefully and to put back among the full bobbins those which have been ejected on account of the end having broken for some reason or other. These bobbins will be in all sizes from almost full to nearly empty, and this inspection should be the means of saving much filling yarn that would otherwise pass on into waste.

With the introduction of the feeler-motion to assist the weaver in running of a greater number of looms, many details in the process of spinning, which were of no particular importance in themselves, became matters of great importance in their bearing on the waste problem. Successful operation of the feeler-motion in its relation to the matter of waste calls for consistently uniform conditions. On the spinning frames, the point where the winding begins must be in the same relation to the base of the bobbin on all frames; the bobbins must fit the spindles in such a way that the winding of the yarn in its relation to the base of the bobbin will be the same in all cases; and, at the loom, the ideal condition would be to have the base of the bobbin in a fixed position in its relation to the feeler when they come into contact with each other. While these conditions cannot be met with that degree of certainty which we like, they can, at least, be given careful, continuous supervision. The feeler depends on the proper adjustment of these parts to carry out its work in a satisfactory manner, and such adjustment will do much toward regulating the amount of filling-yarn waste that is made at the looms.

While the various departments are taking care of their waste problems to the best of their ability, the superintendent should keep clearly in mind the fact that the effect of all that is taking place is a part of the responsibility which falls to his lot. It is essential, therefore, that he should keep a close watch on all reports rendered, and a periodical check-up of the reports from the various departments should be made against the actual waste shipped out. An occasional visit to the waste house by the superintendent may be worth while, as what is going into the waste bags may tell an interesting story. The roving and roller waste will give a good idea as to just how the operatives are taking care of their work; the sweepings will show what is being carelessly thrown on the floor instead of being put into the clean waste; the waste from the slasher-room and the hard waste from the weave-room will show what care is being taken in these departments. Constant supervision is the price that one must pay if waste is to be kept at a minimum.




# FANCY EFFECTS

*By T. R. Hart*
*Textile School, N. C. State College*

FREQUENTLY designers find it advantageous to add variety and richness to their patterns by introducing fancy effects for the ground weave or specific sections of the pattern. Many of these fancy effects are made by combining or rearranging simple weaves, such as twills, and can be woven on a small number of harnesses.

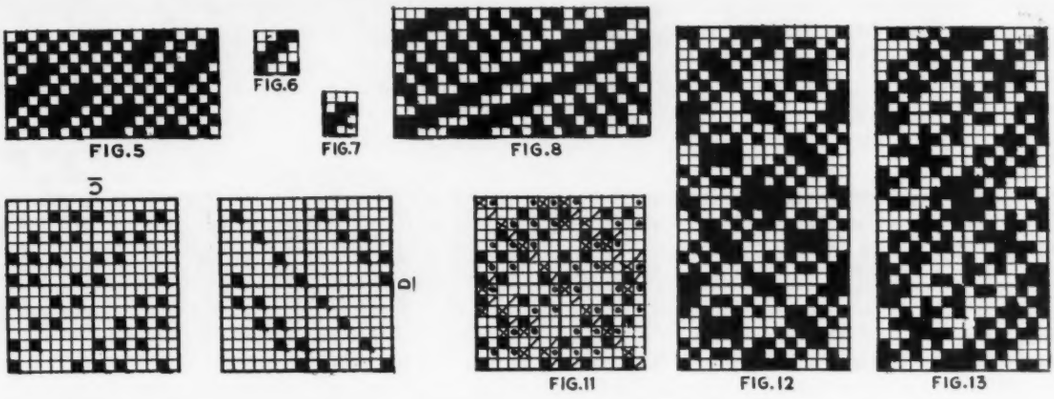
Granite weaves, which are used extensively for the ground of various fabrics, are often made by rearranging twills in sateen order, by adding additional risers to a sateen base, or by taking a certain number of ends or picks and skipping a certain number until the new weave repeats.

## *Work with Eight Harnesses*

Suppose, for example, that a designer desires a small, irregular effect that can be woven on eight harnesses. He can obtain numerous weaves by selecting an eight-harness twill and rearranging either the ends or the picks in sateen order. If it is decided to rearrange the ends of the eight-harness twill shown in Fig. 1, they should be rearranged in eight-harness sateen order, for the sateen order must always correspond with the number of harnesses required to weave the twill that is selected. The procedure is as follows: Select the counter to be used by dividing 8 into two unequal numbers neither of which is divisible by a third number. Thus 8 can be divided into 3 and 5 and either number can be used as the counter.

In this case, 3 will be used. Start with 1 and determine the order in which the twill ends are to be rearranged. Add the counter number to 1 for the second end and continue doing this until the arrangement of all eight ends is ascertained. If the number exceeds the number of ends in the weave, then the number of ends in the weave should be subtracted from it to give the correct counter. The actual calculations for determining the rearrangement of the ends would be as follows:

1; 1 + 3 = 4; 4 + 3 = 7; 7 + 3 = 10 and 10 —




# OBTAINABLE

## *By rearranging and combining simple weaves*

8 = 2; 2 + 3 = 5; 5 + 3 = 8; 8 + 3 = 11 and 11 — 8 = 3; 3 + 3 = 6; 6 + 3 = 9 and 9 — 8 = 1; which shows that the weave begins to repeat. Thus, to produce Fig. 2, the ends in Fig. 1 would be rearranged 1, 4, 7, 2, 5, 8, 3, 6.

If filling effects are desired in weaves of this class, filling-flush twills must be used as the base weave.

Another method of producing granite weaves is to add additional risers to a sateen base. The solid squares in Fig. 3 show a twelve-harness filling sateen made with 5 as a counter. The design is completed by adding six additional risers, indicated by crosses, to each solid square in the sateen base. When doing this, the additional risers must be added to each base square in exactly the same manner.

A third method of producing granite weaves is to take a certain number of ends or picks and skip a certain number until the new weave repeats. Fig. 5 shows such a weave. It was made from Fig. 4 by taking four ends and skipping four. In making designs of this class, it is a good idea to decide upon the number of ends to be taken and skipped. Then work out the design as follows:

| Take ends | | | | | Skip ends | | | |
|---|---|---|---|---|---|---|---|---|
| 1, | 2, | 3, | 4 | | 5, | 6, | 7, | 8 |
| 9, | 10, | 1, | 2 | | 3, | 4, | 5, | 6 |
| 7, | 8, | 9, | 10 | | 1, | 2, | 3, | 4 |
| 5, | 6, | 7, | 8 | | 9, | 10, | 1, | 2 |
| 3, | 4, | 5, | 6 | | 7, | 8, | 9, | 10 |

### *Combining Two Weaves*

Large designs can be made on a small number of harnesses by combining two weaves thread and thread, pick and pick, or in some other definite order. Larger patterns are made when the two weaves that are combined repeat on a different number of ends, for then each must be repeated until both begin to repeat at the same time. Fig. 8 was made by combining Figs. 6 and 7 thread and thread. Here we have a four-harness weave and a three-harness weave, and the new design is twelve picks high because 12 is the lowest number that is divisible by both 3 and 4 and twelve ends of each weave must be used before the new weave repeats.

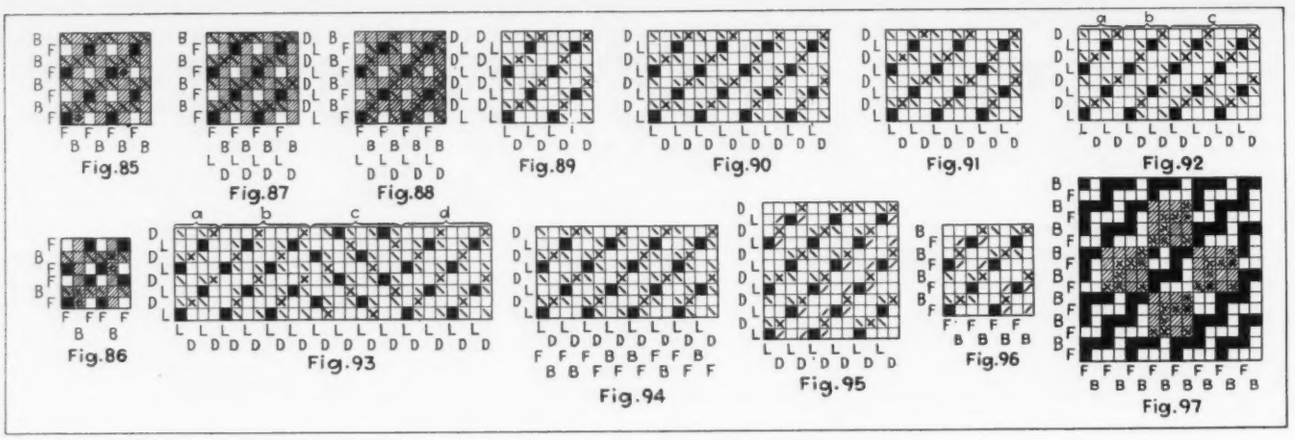
A fifth method of producing fancy effects is often called the four-change method. Sometimes one weave is used in making designs by this method; but more frequently two are used, as the best effects are obtained by having one weave warp-flush and the other filling-flush.

### *The Four-Change Method*

To make these designs, proceed as follows: Insert the first weave, Fig. 9, on the odd ends and picks as indicated at *A*; turn design paper around one quarter to the left and insert the second weave on the odd ends and picks as indicated at *B;* turn design paper another quarter turn to the left and insert the first weave on the odd ends and picks as indicated at *C*; finally turn the design paper another quarter turn to the left and once more insert the second weave on the odd ends and picks, which makes the fourth change *D* and completes the design. For the sake of clearness I have separated the four changes at *A, B, C* and *D,* but the customary method of making these designs is shown in Fig. 11. Different symbols should be used when inserting each of the four changes; otherwise it is practically impossible to check any mistake in placing the different weaves on the odd ends and picks. Designs of this class, when divided into four equal sections, have the alternate sections alike. For example, the lower right-hand quarter of Fig. 11 is exactly the same as the upper left-hand quarter. Fig. 12 shows two repeats of Fig. 11 filled in solid so as to show better the effect of this design.

A slight change in either of the base weaves, or in the way they are inserted, will make a decided change in the resulting design. Fig. 13 shows two repeats of the design which results from starting with the first end of Fig. 9 and the second end of Fig. 10.

While I have illustrated only a few designs, it is possible for a designer to make literally hundreds of fancy effects by using the five methods which I have described.




# DOUBLE PLAIN CLOTHS

## *Including styles arranged one and one as to color, and fancy effects*

*By R. A. C. Scott*

DOUBLE plain weaves employing the ordinary principle of stitching by means of the backing warp, as shown at Figs. 85 and 86, are generally used for solid-colored, dress-faced fabrics, which, incidentally, require to be firmly constructed. In the design illustrated at Fig. 85, the threads are arranged one face to one back in warp and filling; and in Fig. 86, in the proportion of two face to one back. In each case the marks indicate warp, with solid squares representing face, crosses the back, diagonal marks the lifters, and the circles the stitching points. Due to the fact that the stitching threads can be covered on only one side, it will be readily understood why this weave formation is suitable for only solid-colored or piece-dyed fabrics.

However, other and more attractive designs can be obtained by binding on the principle of interchanging the ends and picks. These may be classified as follows: (a) a combination of differently arranged double plain weaves, (b) an arrangement of the ends and picks in a pre-determined order of coloring, such as one and one throughout warp and filling, or in two, three, or four colors, the order in warp and filling being varied according to the effect desired.

The cloths are stitched or bound together by an interchanging of the ends and picks, making further binding unnecessary except when large sectional patterns are introduced, in which case extra stitching would be advisable to insure a smooth and even surface and to eliminate any appearance of puckering.

Two opposite double plain weaves are illustrated at Figs. 87 and 88. In the former the odd ends and picks form the upper and the even ends and picks the lower plain fabric, as illustrated by the corresponding flat view, at Fig. 87*a*. With the weave shown at Fig. 88, the conditions are reversed, the upper fabric being formed by the even ends and picks, and the lower fabric by the odd ends and picks, as represented at Fig. 88*b*. By the combining of these two weaves 87 and 88, the threads are caused to interchange, resulting in a firm, compact structure, so long as as each section does not exceed eight to twelve threads, according to the firmness of the constructed cloth. This then explains the principle underlying the construction of all interchanging double plain weaves, which when studied in relation to adaptability to pattern and color arrangements, affords the designer unlimited scope for origination.

Styles arranged one and one as to color are used in the production of spotted vestings and figured fabrics, as well as in stripe patterns for suitings and trouserings. Assuming that Figs. 87 and 88 were colored in warp and filling, one light and one dark, the former would give a light over a dark surface and the latter a dark over a light surface, as illustrated by the corresponding flat views at Figs. 87*a* and 88*b*, respectively. Therefore, any form of pattern in two colors may be obtained by employing these two weaves in regular or irregular sectional combinations.

This is further illustrated by the plans indicated at Figs. 89, 90, and 91, which give stripe formations of two light and two dark, four light and four dark, and four light and two dark, respectively. It will be noted that the coloring arrangements for warp and filling are alike and also that each color of filling interweaves with only its own color of warp—or, in other words, that the light color in filling covers the light warp thread, and vice versa. This is necessary to obtain solid-colored sections or stripes; and it naturally produces exactly the reverse color effects on the underside of the cloth.

The corresponding flat view of design 89, given at Fig. 89*a*, will further demonstrate this. The even ends and picks are shaded to represent the dark threads; and where these ends and picks appear on the surface, a darker shading is employed as a means of further distinguishing the surface effect.

In combining these weaves, care should be taken to prevent any larger float than three where the interchange is made. No difficulty should be experienced in this respect, in the one-and-one order of coloring, so long as the face and backing weaves are placed in the same relation to each other in every section of the pattern. Again, as each weave 87 and 88 repeats on four threads, a correct junction is always formed by commencing one weave

The next article by Mr. Scott on backed and double cloths will discuss double plain cloths employing a different order of coloring in the warp, and various effects in three and four colors, including four-color work arranged one and one in warp. Previous articles: June, August, and September, 1932; February, May, and October, 1933; February, 1934; and January and October, 1935.

with the thread next in number to the thread with which the other weave finished. For example, in producing a one-and-one color effect—hairline—on face, we could take the first two threads of Fig. 87 and the third and fourth threads of Fig. 88, and thus have correct junctions.

By the combining of picks 1 and 2 of Fig. 87 with picks 3 and 4 of Fig. 88, a hairline effect across the piece is formed; *i.e.*, a horizontal hairline. An example of this is given at Fig. 92, which is composed of two light and two dark vertical hairlines and four picks horizontal hairline on surface of cloth. The corresponding flat view is given at Fig. 92*a*, showing each section marked to correspond with the design—*a* and *b* indicating vertical hairline, and *c* the horizontal hairline.

Another variety of pattern may be formed by interweaving the light picks with the dark ends, and vice versa, giving a mixed or intermingled color effect. An example of this stripe combination is given at Fig. 93. The surface effect of the cloth is two light, four dark, four mixed, four dark, each section indicated as *a*, *b*, *c*, and *d*. It will be further noted that, by reversing the weave as shown in section *c*, a clean cut is possible with the weaves on each side, thereby forming a much better-defined stripe. The method in which the ends in section *c* interweave is illustrated by the flat view given at 93*a*. This mixed effect makes a very attractive stripe for trouserings, especially if placed between dark sections, and is much neater than the hairline effects across the piece.

Another method of arranging the double plain for stripe effects is illustrated at Fig. 94. In the foregoing designs the change from one color to the other was obtained by bringing two face or two backing ends together. The principle employed in Fig. 94 is so arranged, however, that the two ends where the interchange is effected are face ends, making each section on an odd number of ends. As a consequence, there are more ends brought to the face than to the back, without changing in any way the distribution of the picks or the order of coloring.

The color effect on the face of the design illustrated at Fig. 94 is three light, three dark, two light, and two dark. This will be better understood by referring to the flat view shown at Fig. 94*a*. Due to the fact that each section contains one backing end less than the number of face ends, the color effect on back will be two dark, two light, one dark, and one light. The order of coloring in both warp and filling is one light and one dark, throughout, whereas the proportion and order of face and back ends vary according to the pattern arrangement as marked at the foot of plan 94. In the reeding of warps constructed on this principle, it is necessary that each dent in the reed contain the same number of face ends. In this case, eight threads per dent would be found suitable.

It will have been noted that in the construction of stripe patterns the interchange was effected by the filling only, the warp threads remaining unchanged. The only exception is the section *c* of Fig. 92, where the horizontal hairline is introduced. In fancy effects, such as diagonals, block checks, and spotted effects, the latter employed in vesting styles, the interchange is in both warp and filling. Examples of these three effects are given at Figs. 95, 96, and 97, respectively.

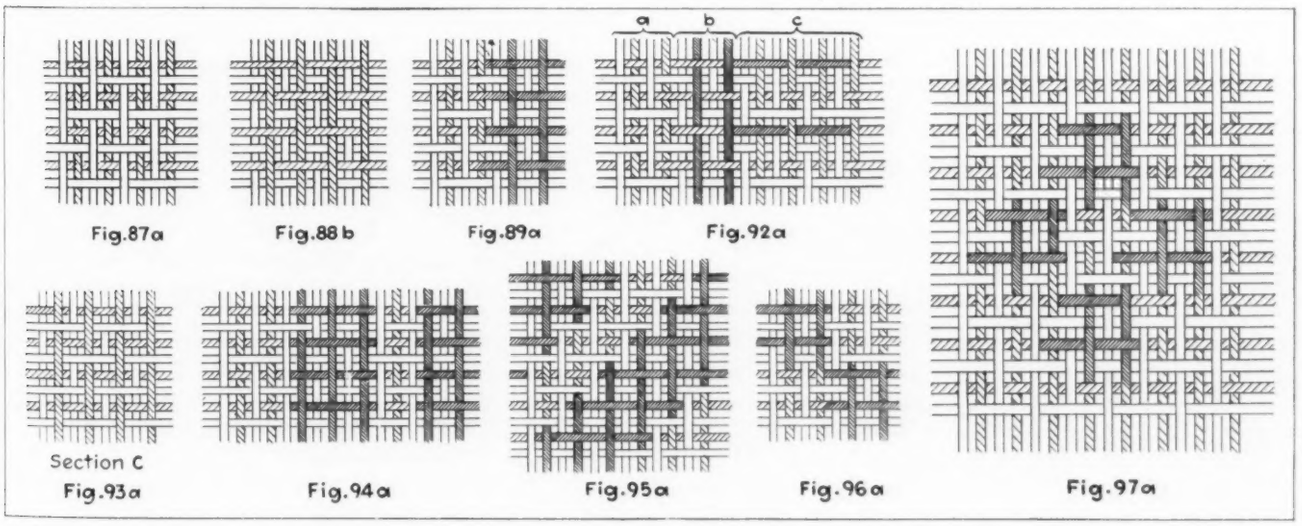
The 12x12 diagonal showing light and dark twills is represented at Fig. 95. Care should be taken in this instance to avoid overlapping of twills. The flat view of this diagonal effect is illustrated at Fig. 95*a*, in which the surface dark threads are shaded darker than those remaining on the underside. In this way, a distinct twill design is pictured and at the same time illustrates very clearly the method of interchanging and intersecting of the ends and picks.

Similarly, the block check design illustrated at Fig. 96 conforms to the system of interchanging both the warp and filling threads. The flat view of this is given at Fig. 96*a*.

In Fig. 97, a design is given for a spot effect, which is represented by the lighter shaded squares. Assuming this is colored one light and one dark throughout, the cloth design will consist of a light ground with four dark spots arranged in a regular order. This will be better understood by comparing the design with the flat view illustrated at Fig. 97*a*, which is shaded to approximate the upper side of the cloth.

It is hardly necessary to point out that in the latter three designs the underside of the cloth will be exactly opposite in color arrangement to that on the face.

Other examples could be given by way of further illustrating the construction of fancy weave effects using the double plain, but space will not permit their insertion. However, so long as the principle underlying their construction has been fully understood, little difficulty should be experienced in creating different and original effects of a practical nature.



# FUTURE OF WOOLEN CARD

## *With some recommendations for improved operation of present machine*

*By P. P. Townend*

◆ *A paper on the present and future of the woolen card, read by Mr. Townend before the Batley Textile Society, Batley, England, has been awarded the annual prize of the the British Federation of Textile Societies. A longer abstract than this appears in the "Journal of the Textile Institute," Vol. 26, No. 8.*

WE HAVE advanced in the manner of feeding and condensing, but modern improvements in the woolen card have been mechanical ones and the machine is still as negative as ever in all its motions.

The question of more working rollers over a cylinder brings up the problem as to how many can be placed over a cylinder and each do full justice to its position. The point to bear in mind is that at every meeting of cylinder with worker some wool must be pushed into the cylinder teeth. But, for successful carding, the wool must rest on the top of the cylinder. Therefore, the more workings there are of material on one cylinder without any intermediate lifting of the material, the further is the wool pushed into the cylinder teeth and the less the carding, relatively speaking, accomplished. Take, for instance, two cylinders, one having eight workers and the other having four; the first will not deliver twice as well carded material as the second.

Most fiber breakage occurs before the first worker. If we could, by some means, prevent this excessive breakage in the forepart of the machine, the carded sliver should be of a better quality. It has been demonstrated that a wet wool fiber will stretch 50% without breaking. Bearing this in mind, let us examine what goes on between the cylinder and worker teeth. When a tangle of wool fibers comes along, part is carried forward by the cylinder and part by the worker. This action goes on very quickly and the fibers have very little time to escape without being broken; but if they were wet, there would be more chance of a disentanglement, owing to the fibers stretching and having more time to unravel themselves. The fact that wet wool is weaker than dry wool does not matter so much in carding. It is the extensibility.

Another way to bring about less fiber breakage is by efficient oiling. Quoting Speakman (*J. Text. Inst.*, 1932, 23, T 154), some Down wool was oiled as follows:

Figures on right show fibers below 50 mm., % by weight:

| | |
|---|---|
| Olive oil 15% | 49.3 |
| Olive-oil emulsion 30% | 39.9 |
| Olive-oil emulsion 22% | 33.2 |

The lower fiber breakage in the case of emulsions is due to more even distribution of the oil.

The ideal carding plant should be worked under controlled atmospheric conditions, in which case any desired percentage of relative humidity is available. This system would lead to less fiber breakage, less flying by the fancy, and less electrification of the fibers. This latter difficulty causes trouble at the condenser part of the machine. Even if controlled humidity is out of the question, it has been proved by Speakman that the wool should always be in such a condition that it is losing moisture to its surroundings rather than picking it up. In such a state it is easier to stretch the fiber without fiber breakage.

It is also suggested that all rags should be washed previous to processing. The savings in stripping would more than compensate for the cost of washing.

Another point which might be improved is the condition of the wool as it comes forward to the card, especially after scouring. It should be chemically neutral.

The question of an efficient drive should not be overlooked, and more will be seen of synchronized drives.

For the clearing of the cylinder, the fancy is not perhaps the ideal medium, for the material ought to be lifted from the cylinder with the least possible disturbance. Two ways are open to secure improvement: (1) The material must be raised by some device enclosed in the cylinder or (2) by some exterior apparatus. The first might be accomplished by wires placed in the cylinder teeth across the cylinder and at intervals around its circumference which, by their being raised, would bring up to the surface the material which had been forced into the cylinder teeth. The second method might be accomplished by suction. In either of these two methods some other device would of course be needed to keep the cylinder sharp.

The greatest improvements will undoubtedly come in the feeding and condensing parts of the machine. Concerning the feeding mechanism, the filling of the hopper itself by an automatic means has been patented by Hartman (1927), this being accomplished by electric contacts. There is yet room for improvements in the shutter mechanism; this might be effected by electric contacts. Another improvement might be in the scale-pan bearings.

With respect to the condenser, it is necessary to ask why condenser bobbins cannot be made the same size as regards the length of silver wound on to them? This would lead to less waste and stoppages for creeling in spinning. A further development would be to run each condensed sliver on to a separate cheese, by which means more sliver would be wrapped on, resulting in a higher production in the mule.

A combination of card and spinning frame is unlikely, not because it is impossible, but rather from the fact that this method would limit the carding production to that of the spinning frame. What might be done is to have a porcupine roller between the tandem rubbers—something similar to the Anglo-Continental type of drawing frame. By such means it would be possible to draft out the material and condense to a much finer degree than at present. Another idea to do away with the tape condenser is to run the sliver from the back doffer over a moving flat surface which has spaces in it corresponding to the thickness of the thread desired; above these spaces would be arranged revolving sharp-edged disks to cut the sliver.

A carding machine can handle only a certain amount of material; above that the fancy is not able to cope with it. This suggests that the first step to increased production is a more efficient fancy.

The machine must be adaptable to present-day small blends and varying qualities.

# FOR SEAMLESS KNITTING . . .

## *An under-drive mechanism and a retrieving device independent of yarn*

***By George E. Cottrell***
*Consulting Knitting Engineer*

FROM an accumulation of sketches made by the writer at different times during the last twenty years, he has selected two subjects which he hopes will be of interest to his readers. The first has to do with an under-drive mechanism which would give a more uniform motion to the cylinder of a seamless machine when it is oscillating to produce the heel and toe or the split-foot part of a hose. The second has to do with a retrieving device which does not depend upon the yarn to operate it, but is operated by electrical means entirely independent of the yarn. The latter device allows the yarn to be drawn into stitches in a normal, uniform manner, unaffected by inertia and momentum of the take-up lever, as is the case with the present take-up device.

The two mechanisms, when used together, should produce in the heel and toe, and the split-foot part of the hose, as even knitting as in other parts of the stocking. The writer will endeavor in the following descriptions to give a clear explanation of the principles involved, so that anyone interested in them may be able to work out the engineering details.

### *Under-drive Mechanism*

Fig. 1 is a sketch of an under-drive mechanism which was conceived by the writer several years ago, when he was having trouble in getting even knitting in a split-foot hose. It will be noted that the crank-motion is entirely eliminated and is replaced by a rack-and-pinion movement. This movement should give an almost perfect uniform motion to the cylinder.

Gear 1 and segment gear 2 are the same as used in the present machines. All the other parts are the same as in present practice, except that the crank connecting rod and the crank gear have been eliminated. The change from the straight-ahead rotary movement to the oscillating movement is effected in the same manner as in present practice. The intermediate gear 3 gives a motion to gear 4, which is one-and-one and in the same direction as the drive gear on the main shaft. Gear 4 and pinion gear 5 are keyed together so that they rotate as one unit. Pinion gear 5 and rack gear 6 have a one-to-four ratio. Rack gear 6 is securely fastened to the housing 7 so that there is just room for pinion 5 to rotate, without binding, in mesh with rack 6. The rack-and-housing unit is articulated with segment gear 2 by means of stud 8, which is securely bolted to segment gear 2. It will be noted that the rack and housing are so designed that there will not be a too abrupt reverse at the end of each oscillation.

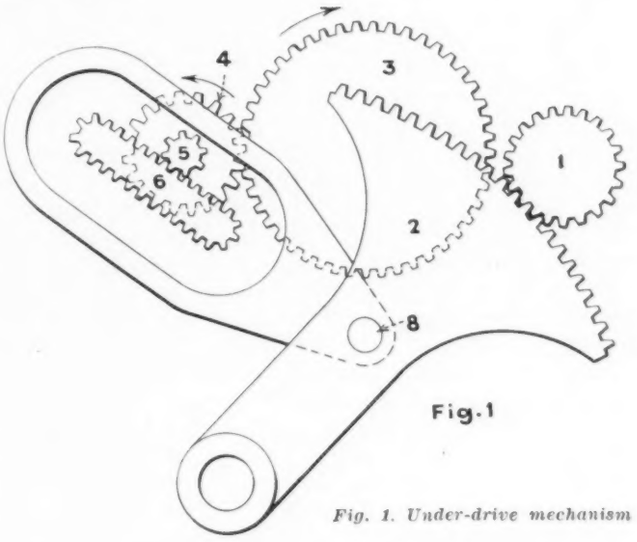
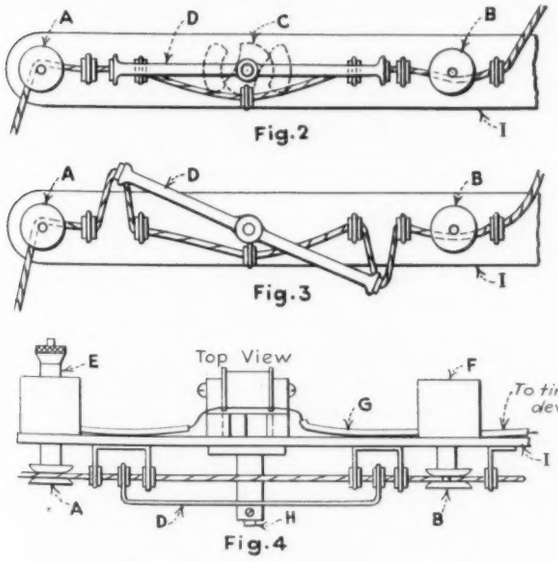



*Fig. 1. Under-drive mechanism*




*Figs. 2, 3, and 4. Yarn take-up device*

### *Retrieving Device*

Figs. 2, 3, and 4 show three views of a yarn take-up device which is actuated independently of the yarn. Part *A* is the adjustable yarn tension with an electro-magnetic release *E*. Part *B* is a yarn trap which holds the yarn firmly during the retrieving part of the cylinder oscillation and is also electrically operated by *F*. Part *D* is the yarn take-up lever which is connected with armature *C* through shaft *H*. All these are mounted on part *I*.

When the cylinder reaches the end of each oscillation, an electrical contact is made by means of a timing device on the under-drive mechanism. This contact is maintained until the cylinder reaches the midpoint of the oscillation. This contact causes lever *D* to become active, and at the same time causes tension *A* to be released and trap *B* to be closed, holding the yarn firmly until the contact is broken. Then tension *A* becomes active, trap *B* is released, and lever *D* goes to its normal position as in Fig. 2.

# STOPPING THE CARRIERS . . .

## *Design and operation of spindles used on full-fashioned hosiery machines*

*By M. C. Miller*

SPINDLES play a large part in controlling the elements of a full-fashioned hosiery machine, such as narrowing points and carriers. Certain spindles, with their ratchets and nuts, are illustrated in Fig. 83.*

*Body Carrier and End Spindles.* The spindles shown in Fig. 83 are adapted to stop carriers. In view 1 a regular single-threaded spindle, mounted at each end of the machine, is shown. One of the seven or more carriers, with which the machine is ordinarily equipped, is shown at *A*, acting as a body carrier for laying yarn from selvage to selvage. It abuts against the left-hand nut *B* at the end of the stroke from right to left and against the right-hand nut *B* at the end of the stroke from left to right. Each of the spindles is fitted with a ratchet *C* for moving its respective nut inwardly so that the traverse of the carrier can automatically be shortened as is necessary in producing full-fashioned hosiery. It is obvious that, if for any reason the fabric were to be widened, the spindles could be equipped with additional opposed-tooth ratchets for racking the nuts *B* outwardly.

*Body and Splicing Carriers and End Spindles.* In view 2 of this figure, the same end spindles are shown for arresting the traverse of the carrier *A*, or body carrier, as it traverses the full width of the fabric from selvage to selvage. In addition, this view shows splicing carriers for reinforcing the fabric from each selvage inwardly as is necessary when forming the high-splice portions of fabric above the heel or the spliced reinforcement of the sole, on the footer. These additional carriers are lettered *B* and *C*, the carrier *B* forming the left-hand selvage splicing, and the carrier *C* the right-hand selvage splicing. These carriers abut against their respective nuts *B* and so lay yarn to the outer selvages in the same manner as the body carrier *A;* but, as they are not intended to lay yarn the full width of the fabric, they are fitted with abutments *B'* and *C'* respectively. These arrest their traverse inwardly by abutting against a more or less centrally disposed stop *D*. That is, the right-hand selvage carrier *C* abuts against the fixed stop *D* with its abutment *C'*, in its traverse from the outer right-hand selvage inwardly; and the reverse action takes place for the carrier *B*.

*Body Carrier and Center Spindle.* A result similar to that described for the structure shown in view 1 is attained by the structure shown in view 3, in which the spindle to arrest the carriers is more or less centrally located, only one spindle being used, one end of which is threaded right-hand and the other left-hand. Each spindle end is fitted with its respective nut *B*; a ratchet *C* is provided to move the nuts *B* toward each other. In this structure, the body carrier *A* is fitted with two abutments *A'*, each of which abuts against one of nuts *B*. This central solid right-and-left spindle structure is commonly used in machines built abroad, many of which are in use in this country. The end spindle structure shown in views 1 and 2 is however much more common in this country.

*Body and Splicing Carriers and Center Spindle.* The method of arresting the traverse of selvage splicing carriers to attain the result shown in view 2, with a centrally disposed spindle, is shown in view 4, the selvage splicing carriers *B* and *C* being fitted with the necessary abutments so that their traverse at the outer selvage can be arrested by the nuts *B* and their inner traverse can be arrested by a fixed stop *D*.

*Body Carrier and Multiple End Spindles.* The structures so far described are capable of producing only narrowed fabrics and selvage spliced fabrics, the inner line of which is on a selected and fixed wale of the fabric in the various courses. If selvage spliced areas are to be produced in which the outline of the spliced portion, inside the selvage, is to be inclined to the wales, it becomes necessary to use additional spindle mechanisms, as, for instance, that shown in view 5. In this arrangement there are a pair of spindles at each end of the machine, the outer ones, like the end spindles shown in views 1 and 2, fitted with nuts *Y* which arrest a body carrier *A* in the same manner as described for the body carrier shown in view 1. The additional spindles, it will be seen, are duplicates of the body carrier stop spindles, but are used to arrest varyingly the selvage splicing carriers, as shown in view 6.

*Body and Varying-Stroke Splicing Carriers and Multiple End Spindles.* In this view 6 the body carrier *A*, a left-hand selvage carrier *B*, and a right-hand selvage carrier *C* are shown. The body carrier *A* is arrested at the fabric selvage by abutting against the nuts *Y* of the outer spindles. The left-hand abutment of the carrier *B* also abuts against the left-hand nut *Y* of the outer spindle at the end of its stroke from right to left, the right-hand end of this carrier *B* being too short to contact against the right-hand nut *Y*. An abutment *B'* is provided on this left-hand selvage carrier *B* for abutting against the left-hand nut *Z*. The right-hand selvage carrier *C* will, in its stroke from left to right, be stopped at the right-hand selvage by abutting with its right-hand end against the outer spindle nut *Y*, while its inner stroke from right to left will be arrested by its abutment *C'* contacting with the right-hand inner spindle nut *Z*.

It will be readily seen, therefore, that if the inner spindles with their nuts *Z* are fitted with single ratchets, the length of the splicing course can be varied without affecting the outer selvage. Whether the splicing course can be lengthened or shortened, depends entirely upon the direction of the automatic racking of these additional spindles. If the nuts *Z* can be automatically moved toward each other, the splicing courses can be lengthened; whereas if the direction of the racking of these additional spindles is such as to draw the nuts outwardly, away from each other, the splicing courses can be automatically shortened. It follows, therefore, that if these additional

*Certain others of historical interest are shown in Fig. 82, which will appear in Mr. Miller's book on full-fashioned hosiery machines and their operation, soon to be published by the McGraw-Hill Book Co., New York. Figs. 1 to 81 inclusive have appeared in previous articles of this series: May 31, July 26, Oct. 4, and Nov. 29, 1930; March 21, April 25, July 11, Aug. 8, Sept. 19, Nov. 28, and Dec. 26, 1931; Feb. 13, March 26, May 21, July, and Oct., 1932; Jan., April, and Nov., 1933; Feb. 14, June, Aug., and Nov., 1934; and May, 1935. Mr. Miller's address is Manville, R. I.

spindles are fitted with opposed-tooth ratchets, the splicing courses, of their inner ends, can be both lengthened and shortened and so form areas of spliced fabric which have their inner outlines forming diverging or converging lines to the vertical wales of the fabric. In view 6 these additional spindles are shown fitted with such double ratchets.

*Body Carrier and Two-Way Threaded End Spindle.* Two-way threaded spindles have been mounted at the end of machines for controlling the body carriers. Such an arrangement is shown in view 7. The results attained are the same as previously described for the structures shown in views 1, 3, and 5.

*Body and Splicing Carriers and Two-Way Threaded End Spindle.* The same type of fixed center stop shown in views 2 and 4 can also be used with such a double-threaded end spindle. Such an arrangement is shown in view 8. With it, narrowed fabric having inner straight-line selvage spliced areas can be produced.

*Varying-Stroke Body and Splicing Carriers and Two-Way Threaded End Spindles.* If the inner line of the selvage spliced areas is to diverge from the vertical wale in one direction, an additional two-way threaded spindle, as shown in view 9, fitted with a single ratchet can be applied to the other end of the machine. If the inner line of the selvage spliced areas is to diverge in two directions to the vertical wale, this spindle can be fitted with a pair of opposed-tooth ratchets as shown in view 9, acting then as described for the inner end spindles shown in view 6.

*Design Carriers and Spindles.* The placing of the spindles, their type, and the means of racking them can of course be varied so that different combination structures can be formed; and, by the application of proper carrier abutments, spliced designs of any conceivable shape may be produced. These designs may take the form of centrally disposed patterns or they may take the form of what are known as clocks, which are narrow designs formed considerably above the heels of hosiery and which usually terminate at the heel. These designs usually require areas inclined in two directions to the wales. Such narrow designs, however, are not commonly produced, for the reason that the plating of narrow areas is not possible on full-fashioned machines. In fact, plating on these machines cannot be assured at the point of carrier reversal for a distance of at least two wales, so that a mottling of the splicing and body yarn results. Unless both yarns are of the same color and quality, there is a noticeable uncertainty in the appearance of the pattern outline.

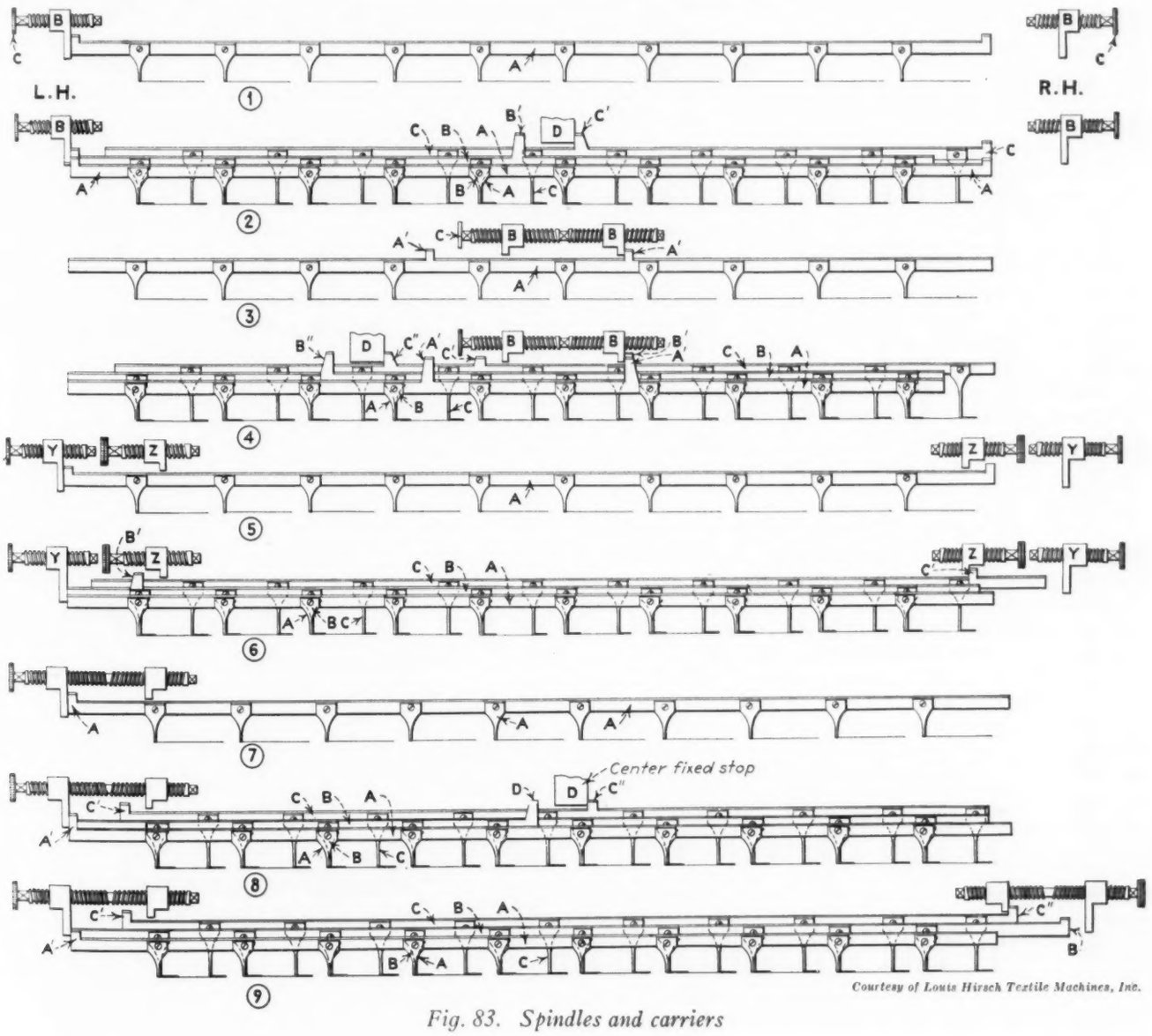



*Fig. 83. Spindles and carriers*

# CARD-ROOM CHARTS

*By Tom Wood*

## *Graphically controlling size of cotton sliver and roving*

GRAPHIC charts can be used to great advantage in the control of sizing at various operations in a cotton mill. They permit more rapid and accurate interpretation of data, provide a condensed historical record, and are not expensive to construct and maintain. The method of maintaining them is easily grasped by the textile clerk of average ability. For making the charts, one can use a specially cross-ruled paper; but this is not necessary, as the standard 17x22-in. coordinate paper with subdivisions of five to the inch is admirably adapted for this purpose.

Usually there is a large collection of figures in memorandum books or in various forms which are filed away daily and usually buried away somewhere when they are wanted for comparative purposes. If these data are transferred to a graphic chart, they are comparable at any time.

Take, for instance, drawing frame sizing. Fig. 1 shows the application of the chart. Use of one square a day with the usual sheet permits a record for two weeks for ten individual drawing frames. If both sides of a sheet are used, this period is doubled. Illustrated are two sizings per day (five can be easily recorded in same square if necessary). It shows all the data necessary, including the stock run, gear on, and also changes of stock or gear.

It is advisable to maintain two sets of charts. The first set is for each individual machine. This calls attention to any particular machine which is needing more gear changing than others or which is varying from standard gearing. Referring again to Fig. 1, it will be noted that the standard size is 360 grains, with a tolerance of 2.75% on each side before the curve arrives at what we might term the danger line, or the point at which it is advisable to change gear.

A good control should be written within a 5% range. However, in this case it would necessitate using uneven figures, whereas by using 5.5%, we have figures easier to follow with no serious effect. Reading Graph 1, in Fig. 1, we find that No. 1 drawing ran O.K. until Wednesday afternoon. At this time it was too heavy and was lightened one tooth. Without looking up the size sheets for Monday and Tuesday, one can make certain from the chart that No. 1 drawing was satisfactory on those days.

Still referring to Fig. 1, we find that No. 2 drawing ran all right, and that the stock was changed twice during the week. No. 3 drawing ran satisfactorily, with a slight tendency toward the heavy side.

The second set of charts is an assembly of each different stock. One sheet (Fig. 2) permits a 13-week record of any stock, and shows the trend at any process. If both sides of the sheet are used, a 6-mo. record can be kept. For example, if the ribbon-lap sizing indicates a lightening-up of the material, even if inside the danger line, this will attract notice, and particular attention will be paid to the next process.

Sizing is usually done by some minor employee, and quite often the gear changing is decided by the same person. The graphic chart is of assistance to that employee, and also permits the busy executive to see what is being done and exercise an intelligent supervisory control over this most important function—size control.

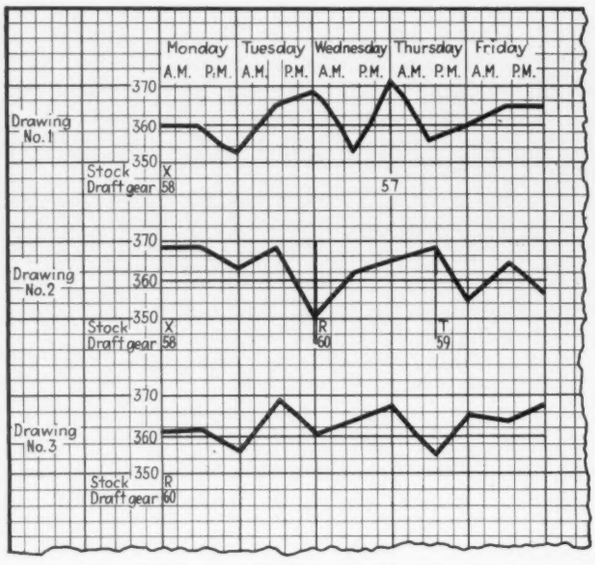



*Fig. 1. Record of individual drawing frames.*

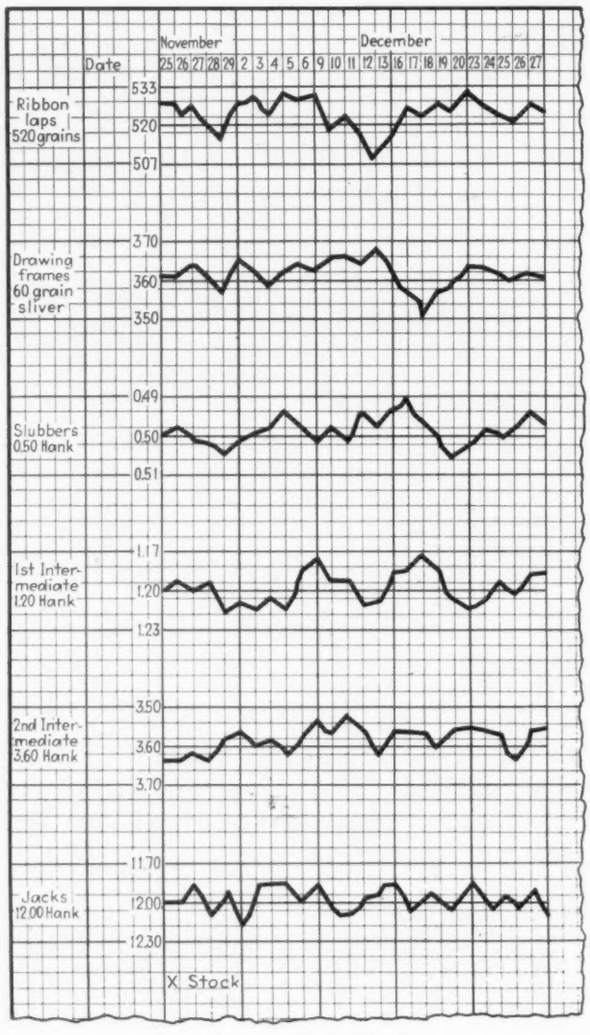



*Fig. 2. Record of individual stock.*

Fig. 2

# SILK SOAKING

## *Recent development gives dependable results in three-carrier knitting*

***By Albin Johnson***
*E. F. Houghton & Co., Philadelphia*

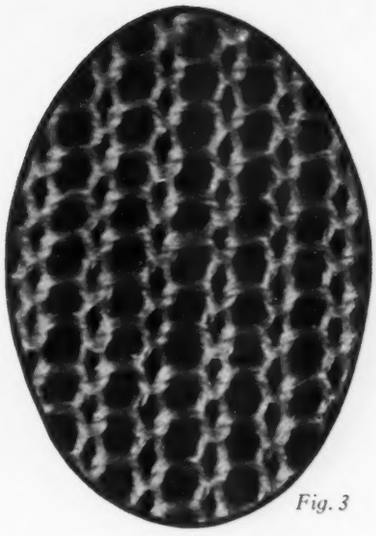


Fig. 3

AT PRESENT most throwsters depend upon the use of hydroscopic agents in order to make their silk soft and suitable for direct knitting. In the last few months, however, a number of mills have turned to the use of soaking solutions which contain a penetrant, a plasticizing agent, and a lubricant. Silk soaked in the usual way will knit satisfactorily if used immediately under favorable conditions. The great advantage of solutions of the latter type is that they make the silk suitable for direct knitting, regardless of weather conditions or knitting-room humidity. That is, upon standing, the silk will not absorb moisture on a wet day and, hence, will not degum or strip on the trays of the knitting machines or stick on the needles. On a dry day, it will not lose moisture, and, therefore, will not cause sleaziness.

A typical soaking solution of this nature for 100 lb. of silk for hosiery tram intended for direct knitting consists of 20 lb. of a soluble soaking oil made from a vegetable-oil base and containing a plasticizer, a penetrant, and a lubricant; 1½ lb. of a mildew preventive; 3 lb. of potassium carbonate; and 78 gal. of water. To give the maximum take-up, the solution is prepared by mixing 2 parts of water at a temperature of 170° F. to 1 part of oil, and adding this mixture to the soaking bath.

Soaking is carried out at a temperature of 85 to 95° F. The time required for tub soaking is about 10 to 12 hours. With a circulating tub, the solution should be circulated for about 5 to 6 hours, and soaking without circulation continued for another 3 to 4 hours. In machine soaking at 10-lb. pressure, 90 min. is sufficient.

The rate and percentage of take-up of a soaking solution made up as described and applied by the machine method is shown in Fig. 1. Silk employed was 13/15-denier, 91% Japan. Note the rapid penetration; more than 50% take-up of oil is obtained in 10 min., and 93% in 90 min.

In Fig. 2 is illustrated a portion of a 42-gage, 3-carrier stocking made from 4-thread, 18-turn, 13/15-denier, 91% Japan silk, soaked with one of the older types of oils. Note that the knitting is far from satisfactory. In Fig. 3 is shown part of a similar stocking made from the same kind of raw silk, but soaked with one of the newer oils. Note the evenness of stitch and freedom from sleaziness. Silk which is soaked with one of these newer compounds containing a penetrant, a plasticizer, and a lubricant will absorb water very slowly; but the sericin will be soft and plastic, making the silk suitable for direct knitting under any weather condition or mill humidity.

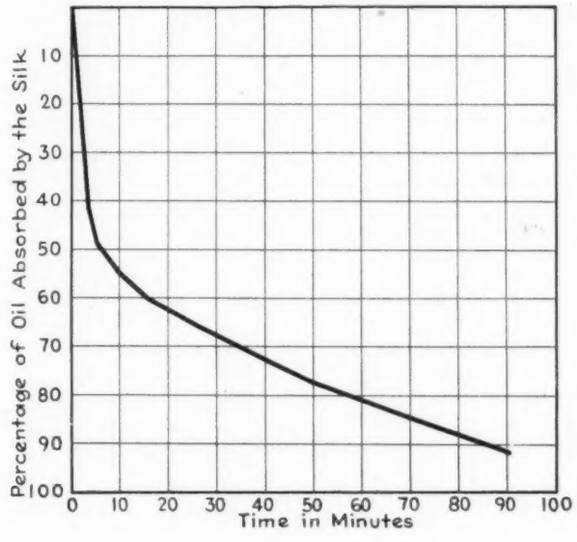



*Fig. 1. Rate and percentage of take-up of oil from soaking solution.*

*Fig. 2. Upper left—Photomicrograph of 3-carrier stocking made from silk soaked in usual way.*

*Fig. 3. Upper right—Same type of hosiery made from silk soaked with one of the newer compounds.*

*Over-all economy is most important consideration in installation of*

# PRINTING-MACHINE DRIVES

*By R. DeVere Hope*
*Consulting Engineer*

PRESENT-DAY printing requires a motor of variable speed, and high starting torque. While the power varies with the speed, the torque changes widely, due to many other conditions, such as the number of rollers and pressure. The power requirements for printing machines are very erratic and practically impossible to predict with any degree of accuracy. The average load is usually about 40 to 60% of the demand. Many machines are under-motored, because proper consideration was not given to the selection of the motor best suited for the work. In view of the fact that the machine must be operated over a wide range of speeds, it is essential that the drive be designed and built in such a manner as to have sufficient power available to make the operation positive and reliable at any speed. An improperly designed and poorly constructed drive is frequently responsible for delays and spoiling of many yards of cloth.

The speed at which a printing machine can economically produce goods depends upon a number of factors, such as number of colors to be printed, texture and width of material, depth of engraving, set on the rollers necessary for satisfactory printing, and additional load that the machine itself must pull. Actual production may vary from 30 yd. per minute for silk to 130 yd. per minute for narrow cotton. An average of 40 yd. per minute for silk and synthetics and 100 yd. per minute for cotton should be proper for machines equipped with not more than 8 colors. With 10-, 12-, 14-, and 16-color machines, the output would probably be about 75% of the above figures.

Printing machines designed for pure silk are generally geared for maximum speeds of 50 to 60 yd. per minute. Generally this will require a speed variation of 3 to 1, although some operators demand a range of 4 to 1. Threading speed should be 50% of the lowest operating speed—5 to 10 yd. per minute. In printing rayons and acetates, the speed range is about the same as for silk. Cotton can be run at maximum speeds of 90 to 110 yd. per minute. Speed ranges are seldom less than 3 to 1, and in some cases printers insist on ranges of 5 to 1 and 6 to 1. Threading speed for cotton is usually 30 to 50% of the lowest operating speed. Machines geared for producing printed cloth at the rate of 60 yd. per minute or less, should not use motor speeds over 1,400 r.p.m., due to high ratio of chain gear. Drives requiring higher speeds, such as those necessary for printing cotton, may go to motor speeds of 1,600 r.p.m. without any mechanical difficulty.

Quick stopping is not only desirable, but is an economical necessity. With d-c. motors this is accomplished by dynamic braking. With a-c. motors, quick stopping is accomplished either by plugging or by solenoid brakes. Plugging, which is another name for phase reversing, has been considered preferable to the solenoid method. Predetermined speed setting is another desirable feature. This means that the machine operator may slow down or stop, then accelerate to the set predetermined operating speed, and the machine will be in register at that speed.

The difficulty formerly experienced in obtaining stable speed operations when low threading speeds were required has been overcome with newer jobs by placing series resistance in the power circuit. This arrangement limits the tendency of series characteristics or reduced speed with increased load. The speed load curve is practically flat, except at the approach of excessively high loads, at which point the speed has a tendency to drop slightly.

There are now four principal methods of electric drives: (1) Ward-Leonard—direct current; (2) multi-voltage—direct current; (3) adjustable-speed motors—direct current; and (4) variable-speed—alternating current (B.T.A.).

The Ward-Leonard system consists of a d-c. motor, a d-c. generator, and an exciter and controlling device. For a wide range of speeds this system is outstanding. Under ordinary circumstances, however, either the adjustable-speed, d-c. motor or the variable-speed, brush-shifting, a-c. motor has sufficient speed range for the majority of printing-machine applications.

In the multi-voltage system the motor speed range is obtained by impressing upon the motor voltages of different values. The usual arrangement employed in this country gives a speed range of 6 to 1. There are only a few multi-voltage systems left, and there seems to be no valid reason for their installation.

Wherever direct current is available in a mill, the application of the shunt-wound, variable- or adjustable-speed, d-c. motor is admirably suited for printing machines. With the addition of the commutating or interpole, the stability and commutating characteristics are so much improved that it is now possible to get a range of speed variations sufficiently wide to meet most conditions. This variation is achieved both by shunt field and armature control. The speed changes may be obtained either by drum controllers or by full or semi-automatic predetermined, pushbutton controllers.

Introduction several years ago of an adjustable-speed, a-c. motor, known as the B.T.A. motor, enables printing plants which have only a-c. supply to use electric drives. Speed ranges are obtainable in ratio of 3 to 1 and, in special cases, 4 to 1. These motors can be procured for either two- or three-phase service. The control equipment for B.T.A. motors may be either full or semi-automatic, similar to d-c. motor installations.

A careful comparison of certain features of the B.T.A. equipment with d-c. installation indicates that the efficiencies throughout the entire range of speed are high. However, the starting torque is lower, and the speed curve shows a drop of from 10 to 25% with increased load. This drop is much greater than the drop in the inter-pole shunt motor equipped with the stabilizing

Abstract of paper presented at annual meeting of textile section, American Society of Mechanical Engineers, held in New York, Dec. 4.

winding. The power factor of the B.T.A. is high, except at low speed, and even then is high (about 60%) when compared with other types of a-c. motors at similar speeds. Leading power factor is found at high speed; this is a highly desirable condition in territories where the utility companies penalize for low power factor. Maintenance cost is approximately the same with either the shunt d-c. motor or the B.T.A. a-c. motor. Most of the electrical maintenance cost in printing-machine installations is in the switching gear and control apparatus, rather than in the motors themselves. The reason for this is that the motors will carry higher overloads than the controls. Some cases are recorded where excessive interruptions have been improved by replacing contactor relays and other control equipment with equipment of higher capacity.

The initial investment for d-c. motor drives is less than that for B.T.A. equipment. In cases where only alternating supply is available, motor-generator sets or rotary-converters may be installed to change the alternating to direct current to supply the motors. It is not economical, however, to install a motor-generator set unless the plant has at least three printing machines, at which point the investment is about the same as that for B.T.A. motors. When the machines exceed three, the motor-generator and d-c. motors are cheaper.

Other types of a-c. motors—such as the induction, squirrel-cage, and the wound-rotor types—have been used occasionally, but for general practice, these types are not regarded satisfactory for printing-machine work.

In most cases, the limiting factor which controls the speed of production is that of drying. Most drying is still done on dry cans. While cans may be suited fairly well for cotton, acetate materials are better when dried in machines utilizing the principle of rapid-moving hot air. It probably is safe to say that many plants can increase their production from printing machines 35 to 40% by changing their drying equipment better to meet the present-day requirements.

The average horsepower of motors required for two- to sixteen-color printing machines is shown in Table II. Data on power and cloth speeds with d-c. motors are shown in Table I. Results of power tests with B.T.A. and d-c. motors are shown in Table III.

In all power applications, the most important consideration should be over-all economy. This, of course, brings in studies of continuity of service and facilities for meeting peak demands, as well as economical over-all operations. While the efficiency of motors and generators and other electrical and mechanical driving equipment cannot be ignored, this factor, in my opinion, should receive less consideration than that of continuity of service.

Frequently it is found that large investments in plant and spoilage of merchandise occur on account of erroneous decisions having been made in the selection of drive units. In most cases, such wrong applications are due to an over-zealous incentive to consider purely the efficiency of the drive unit, instead of considering the over-all efficiency of either the entire plant or a group of machines which are depending for proper and continuous performance on the individual driving units.

### *Table I. Data on power and cloth speeds of machines driven by d-c. motors (at right)*

| *No. of Colors* | *Volts* | *Amps.* | *Hp.* | *Cloth speed yd. per min.* | *Motor* | *Print Machine* |
|---|---|---|---|---|---|---|
| 2 | 252 | 30 | 10.1 | 16 | Hp. 10-15; Volts 230; R.p.m. 400-1600; Amp. 39-58 | Phenix Fdry.; 3 colors; 2 large and 6 small cylinder dryers |
| | 252 | 18 | 6.1 | 33 | | |
| | 250 | 24 | 8.0 | 46 | | |
| | 250 | 37 | 9.0 | 52 | | |
| | 252 | 30 | 10.1 | 56 | | |
| 2 | 246 | 38 | 13.6 | 75 | Hp. 15-20; Volts 230; Amp. 58.5-74; R.p.m. 400-1600 | Textile-Fin. Mach. Co.; 4 colors; 6 large cylinder dryers |
| | 250 | 40 | 16.9 | 82 | | |
| | 250 | 32 | 12.5 | 66 | | |
| | 247 | 20 | 21.0 | 35 | | |
| | 244 | 24 | 7.3 | 43 | | |
| 3 | 250 | 26 | 8.7 | 34 | Hp. 15-20; Volts 230; Amp. 58.5-74; R.p.m. 400-1600 | Rice, Barton & Fales; 4 colors; 13-can dryer |
| | 250 | 34 | 11.4 | 47 | | |
| | 246 | 47 | 13.2 | 62 | | |
| | 246 | 57 | 18.8 | 77 | | |
| 2 | 246 | 19 | 6.3 | 28 | Hp. 15-20; Volts 230; Amp. 58.5-74; R.p.m. 400-1600 | Textile-Fin. Mach. Co.; 4 colors; 15-cylinder dryer |
| | 246 | 23 | 7.6 | 35 | | |
| | 249 | 26 | 8.7 | 54 | | |
| | 250 | 37 | 12.4 | 61 | | |
| 4 | 254 | 46 | 15.6 | 43 | Hp. 15-20; Volts 230; Amp. 58.5-74; R.p.m. 400-1600 | Textile-Fin. Mach. Co.; 4 colors; 15-cylinder dryer |
| | 255 | 60 | 20.5 | 55 | | |
| | 250 | 70 | 23.4 | 64 | | |
| 4 | 242 | 42 | 13.7 | 47 | Hp. 20-25; Volts 230; Amp. 77-96; R.p.m. 400-1600 | Textile-Fin. Mach. Co.; 6 colors; 14-cylinder dryer |
| | 242 | 52 | 16.9 | 60 | | |
| | 246 | 38 | 12.5 | 19 | | |
| | 246 | 64 | 21.0 | 71 | | |
| | 246 | 22 | 7.2 | 24 | | |

### *Table II. Average horsepower of motors required to operate two- to sixteen-color printing machines*

| *No. of Colors* | *Silk* | *Rayon* | *Cotton* |
|---|---|---|---|
| 2..... | 10 hp. | 15 hp. | 15 hp. |
| 3..... | 15 hp. | 20 hp. | 20 hp. |
| 4..... | 20 hp. | 20 hp. | 25 hp. |
| 6..... | 25 hp. | 25 hp. | 25 hp. |
| 8..... | 25 hp. | 30 hp. | 30 hp. |
| 10..... | 30 hp. | 30 hp. | 40 hp. |
| 12..... | 30 hp. | 40 hp. | 40 hp. |
| 14..... | 40 hp. | 40 hp. | 50 hp. |
| 16..... | 40 hp. | 50 hp. | 50 hp. |

### *Table III. Results of power tests on machines driven by d-c. and B.T.A. motors*

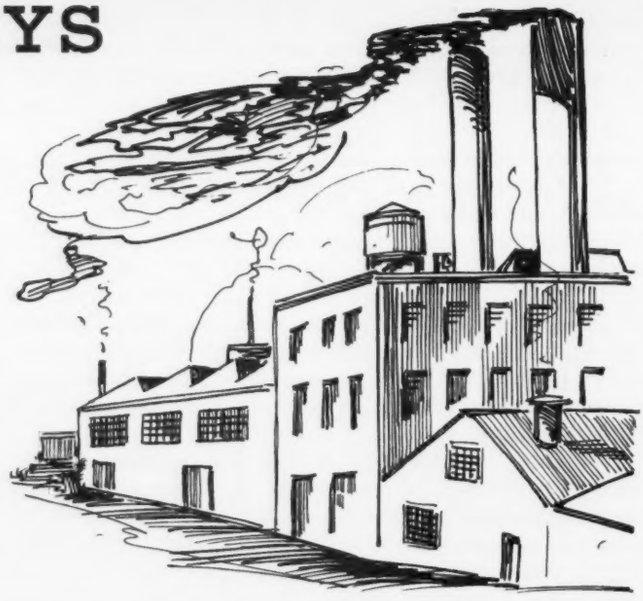
| *Fabric* | *Volts* | *Amps.* | *KW.* | *R.P.M.* | *Yd. per Min.* | *Colors* | *Hp. Output* | *P.F.* | *Motor* | *Print Machine* |
|---|---|---|---|---|---|---|---|---|---|---|
| Dress Goods | 565 | 11 | 9.6 | 440 | .. | 6 | 9.25 | 89% | B.T.A. 8 pole; 30/10 hp.; 1250/415 r.p.m. | Rice, Barton & Fales; 8 color; 7 23-in. and 4 5-ft. dry cans; Medium set on rolls |
| | 565 | 22 | 21.0 | 1180 | 64 | 6 | 21.60 | 97.5% | | |
| | 565 | 22 | 22.0 | 1250 | 70 | 6 | 22.80 | *99% | | |
| Mercerized Lawn | 565 | 15 | 7.4 | 750 | 48 | 1 | 6.35 | 50.5% | B.T.A. 8 pole; 35/11.6 hp.; 1250/415 r.p.m. | Rice, Barton & Fales; 8 color; 7 23-in. and 4 5-ft. dry cans; Medium set on rolls |
| Cretonne | 570 | 20 | 11.6 | 540 | 28 | 4 | 11.70 | 59% | B.T.A. 8 pole; 30/10 hp.; 1250/415 r.p.m. | Rice, Barton & Fales; 6 color; 6 23½-in. and 4 5-ft. dry cans; More than medium set |
| | 565 | 20 | 18.4 | 1020 | 64 | 4 | 19.00 | 94% | | |
| | 565 | 22 | 22.6 | 1200 | 78 | 4 | 23.50 | *97.5% | | |
| Cotton Fabric | 140 | 70/40 | .... | .... | .. | 5 | .... | .... | D-c. 20/30 hp.; 525/1500 r.p.m. | Rice, Barton & Fales; 8 color; 5 5-ft. dry cans; Medium set on rolls |
| | 242 | 42 | 10.2 | 550 | 25 | 5 | 11.20 | 58% | | |
| | 242 | 54 | 13.1 | 720 | .. | 5 | 15.00 | 58% | | |
| | 240 | 75 | 18.0 | 1050 | .. | 5 | 21.00 | 58% | | |
| | 236 | 114 | 26.9 | 1560 | 68 | 5 | 31.40 | 58% | | |
| Shirting | 240 | 26 | 6.24 | 400 | .. | 1 | 6.17 | 58% | D-c. 20/30 hp.; 525/1500 r.p.m. | Rice, Barton & Fales; 6 color; 6 23½-in. and 4 3-ft. dry cans; Very heavy set |
| | 240 | 40 | 9.6 | 800 | 54 | 1 | 10.60 | 58% | | |
| | 240 | 45 | 10.8 | 900 | 62 | 1 | 12.20 | 58% | | |
| | 240 | 50 | 12.0 | 1090 | .. | 1 | 13.70 | 58% | | |

*Leading.

# SMOKY CHIMNEYS

## *Are not the only symptom of stack losses*

*By N. T. Pef*



IN STANDARD text books on combustion, six or seven boiler-room losses generally are considered, and methods and formulas for determining these losses are discussed. While such complicated procedures are necessary if the highest degree of efficiency is to be secured, the average practical problem can be solved without going too deeply into the theories expounded in the text books. In fact, boiler losses might be divided into three classes: (1) those which are inherent and impossible to correct or reduce, (2) those which are more or less controllable but which are relatively small, and (3) chimney losses—the real enemy of efficiency.

It has been emphasized in a previous article (TEXTILE WORLD, December, 1935), that any boiler can be operated with an efficiency of 70%, no matter when it was installed, what make it is, or what the operating conditions happen to be. Anything below 70% is preventable loss. For the average boiler room, preventable loss is believed to be about 25%, since it is known that more boilers are operated below the 60% line than above it. It is probable that chimney loss represents 75% of this preventable loss, and sometimes it is the only preventable loss. It not only is the largest loss; it is the most controllable. For instance, in the average boiler room about 30% of the heat of the fuel is carried up the stack, and two-thirds of this could be saved.

### *Enemies of Efficiency*

There are many textile executives who consider the stack an indicator of boiler-room efficiency. If the stack is smoky, they do something about it; if it is clear, they assume that operation is economical. It is true that a clear stack may represent efficient operation. But it also is true that such a stack may represent an overwhelming excess of air. This excess air dilutes the gases so greatly that it is impossible to tell by observation anything about the efficiency of the operation. As a matter of fact, the greater majority of clear stacks represent an abnormal excess of air, rather than efficient combustion. A noted authority on combustion has said that clear stacks waste more fuel than smoky stacks.

Regardless of whether the chimney loss is caused by too much air, too high a flue-gas temperature or both, the only way to minimize it is to keep the air and temperature within certain limits; and the first step in this direction is to learn what these limits are. As far as the proper amount of excess air is concerned, there should be about 40% when coal is used as a fuel. This corresponds to 12 or 13% $CO_2$. With oil as a fuel, the $CO_2$ should be 13%; with natural gas, it should be 10%. The foregoing percentages of $CO_2$ apply to all boilers, regardless of operating conditions.

As to the proper temperature of flue gas, no figures can be offered which would apply to all cases, due to the fact each installation operates under different conditions. However, a general rule is that flue-gas temperature should be about 100° F. higher than the temperature of the saturated steam corresponding to the pressure reading. This rule applies when the load on the boiler is normal, or 100% of rating, and one should allow 1° F. for each 1% variation in rating. Based on this rule, proper flue-gas temperatures for different operating pressures and 100% rating are as follows:

| Operating pressure in pounds.... | 0 | 50 | 100 | 150 | 200 | 300 |
|---|---|---|---|---|---|---|
| Correct stack temperature..... | 313 | 398 | 438 | 467 | 488 | 520 |

It is a good practice to note the flue-gas temperature after the boiler has been cleaned thoroughly and the baffling put in good repair. This indicates the correct condition with proper allowance for difference in rating.

The most valuable instruments in the boiler room are the flue-gas analyzer and the flue-gas thermometer, and without these efficient operation is impossible. No boiler is too small to be without these instruments. A portable set, consisting of a thermometer, an analyzer, and a draft gage, may be had for $50—a good investment even for a 100-hp. boiler.

### *Instruments Must Be Used*

It must be remembered, however, that the mere possession of these instruments is no assurance that operation is economical. In fact, there are many boiler rooms in the textile industry having a heavy investment in all kinds of recording and indicating instruments which are operated no more efficiently than boiler rooms with a steam gage as the only instrument. In about 50% of the inefficiently operated, but well-equipped boiler rooms, the instruments have been neglected until their accuracy is so impaired as to make them useless for determining conditions. In the remaining 50%, the instruments are in good repair, but the operatives pay no attention to the readings. For example, the writer has seen charts covering a period of years with $CO_2$ readings of 6 or 8% and flue-gas temperatures of 700 or 800° F.—and nothing had been done to correct such conditions.

In any plant where boiler losses are due to a high excess of air and an excessively high temperature, it is possible to reduce fuel consumption by at least 10% by keeping the $CO_2$ above 10% and the temperature of the flue gas about 100° F. higher than the temperature of the saturated steam.

*Beginning a new series of articles on constructions, finishes, and uses of*

*By John Hoye*

# STAPLE COTTON FABRICS

ALL three of the foundation weaves are to be found in cotton cloths. These are the plain, twill, and satin weaves. They are the foundations on which all other weaves are built. No matter how intricate the design, a combination of these main weaves or their derivatives is used in the weaving of it. Plain-weave fabrics are the most common.

Among the variations and combinations of these foundation weaves used in cotton fabrics are the leno, dobby, and jacquard. Below are the weaves and the cotton fabrics in which they are to be found.

*Plain Weave*—Sheeting, print cloth, broadcloth, etc.
*Twill Weave*—Jean, drill, serge, etc.
*Satin Weave*—Warp sateen, filling sateen, venetian.
*Leno or Gauze Weave*—Marquisette.
*Dobby Weave*—Bedford cord, cloths with small woven designs (such as madras), fancy stripes, or all-over effects (up to 24 harnesses).
*Jacquard Weave*—Damask, fancy shirtings, draperies, bedspreads, cloths with large or intricate designs (requiring more than 24 harnesses).

The best-known and most widely used of all weaves is the plain or calico weave. There is a wide range of cotton fabrics in the plain weave from the sheer lightweight organdies or flimsy cheese cloths to the heavy ducks and blankets.

Everything else being equal—yarns and total number of threads per square inch—a plain-woven cloth is the strongest because it has more interlacings or binding points than a twill- or satin-woven cloth. However, it is possible to weave more threads per square inch in a twill weave because there are fewer intersections, and this is the reason why a twilled cloth is usually stronger than a plain cloth. Satin-woven cloths produce a long float, smooth and free from pronounced twill lines, with fewer binding points, and give a smooth, soft, highly lustrous effect in the finishing, especially in filling sateens.

As a general rule, warp-faced cloths, which have considerably more warp threads than filling threads, are stronger and more serviceable than filling cloths. On the other hand, filling-faced cloths, which have considerably more filling threads than warp threads, give a higher finish in the finishing operations. This is because the filling yarn is softer than the warp. Warp-faced cloths are found in overalls, suitings, shirtings; filling-faced in underwear, linings.

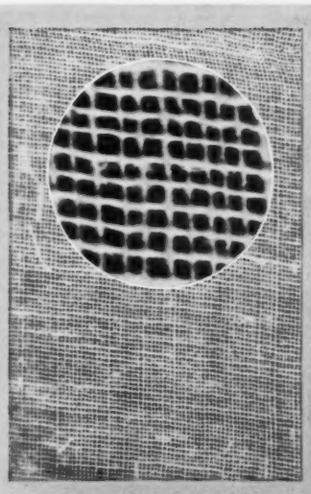
Woven cloths of 12 in. and under are known as narrow fabrics and are made on narrow-fabric or ribbon looms which weave several at a time. Cotton cloths run from 13 in. wide up to wide sheeting and duck widths of 108 in., and in special cases up to 156 in. The width is usually stated in inches; but for wider widths, as in sheetings, it is expressed in quarters of a yard (9 in.). Example: 54-in. cloth is 6/4 or six quarters.

Selvages often consist of extra warp ends woven closer together than the body of cloth; but in the better cloths tape selvages are woven with a different weave from the body of the cloth and run from about $\frac{1}{4}$ in. up to $\frac{3}{4}$ in. wide. They are better looking and stronger than the ordinary plain, or "wire" selvages. Tape selvages are used in voiles, marquisettes, wide sheetings, twills, umbrella cloths, etc. Plain or wire selvages are used in print cloths, narrow sheetings, drills, ducks, etc.

For very narrow fabrics, the cloth is often woven twice the width with two extra selvages in the center. This is done by weaving extra selvage ends in the center with a very small space between the extra warp ends forming the selvages. After the cloth is bleached, dyed, or printed and finished, it is split down the center, making two narrow cloths out of one wide cloth, each of the narrow cloths having two selvages. One of the two selvages has a ragged edge, and the prob-

**THERE has been a long-standing—almost desperate—need for a complete encyclopedia of staple cotton fabrics which would give the various constructions of each cloth, a true-size and magnified view of each, the types of finishes employed, and the uses to which the goods are put. The heavy task of compiling such a reference work has, in the past, discouraged the few who have attempted it, with the result that only incomplete efforts to fill this great need have been made. Consequently there has been no easy and thorough way for a textile man to educate himself on those fabrics with which he is relatively unfamiliar. A complete knowledge of cloths has had to be gained over many years by a more extensive experience than most men are ever fortunate to acquire.**

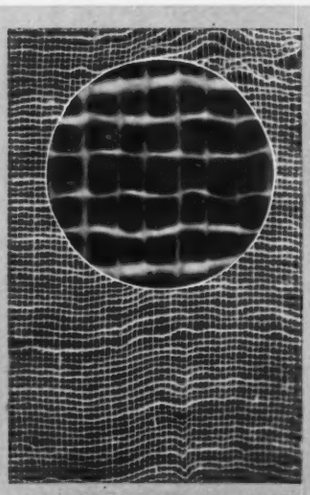
**But now a man has come forward willing and able to undertake for TEXTILE WORLD readers the compilation of such a huge piece of educational literature. Mr. Hoye is a member of the staff of Herbert G. Franz Co., Inc., commission merchants of New York and Chicago, and is also an evening instructor in cotton-goods converting at Straubenmuller Textile High School, New York. For generous cooperation in the assembling of both information and samples, he is indebted to many prominent commission houses, mills, and other establishments and individuals. The first instalment appears herewith, and the second will appear in February. It is expected that a total of over 100 fabrics will be illustrated and discussed before the series is completed.**



Catlin Farish Co., Inc.

**CHEESE CLOTH**

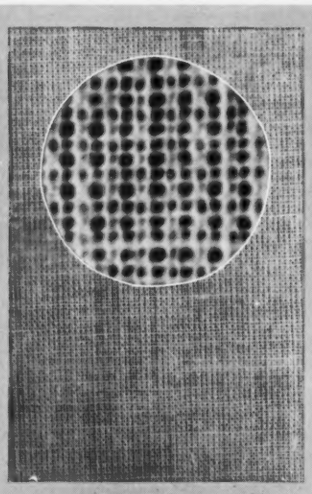
***38½", 44x40, 8.20 yd. per lb.***



William H. Combs

**TOBACCO CLOTH**

***36", 32x24, 13.50 yd. per lb.***



Woodward Baldwin & Co.

**PRINT CLOTH**

***38½", 64x60, 5.35 yd. per lb.***

## *Cheese and Tobacco Cloths*

The plain-woven cloths of lowest construction are the cheese and tobacco cloths. Cheese cloths are made narrow (under 36 in.) and wide (over 36 in.). They are loose woven, thin, light weight, open construction, always carded. The same cloth made in 36 in. is called a tobacco cloth. This is generally made in lower constructions than cheese cloth.

| | *Widths* | *Constructions* |
|---|---|---|
| Narrow Cheese | 24" to 34" | 32x22 up to |
| Wide Cheese | 37" to 55" | 48x48 |
| Tobacco Cloth | 36" | 8x8 up to 48x48 |

| | *Warp Yarns* | *Filling Yarns* |
|---|---|---|
| Narrow Cheese, Wide Cheese, Tobacco Cloth | 28s to 30s carded | 39s to 42s carded |

*Uses in gray:* Tobacco-plant coverings, tea bags, wiping rags.

*Finishes used:* Lawn, imitation voile, wigan, heavy friction filled, printed flag bunting, back filled, crinoline, buckram, flameproof.

*Uses in finished state:* Curtains, bedspreads, interlinings, flour bags, flag buntings, dust cloths, label and sign cloths, cheese and butter wrappings, surgical gauzes, bandages, hat linings, fly nets, theatrical gauzes, bases for laminated cellulose film (such as Cellophane) fabrics.

*Examples of Standard Gray Constructions*

*Cheese Cloths*

| | | | | | |
|---|---|---|---|---|---|
| 25" | 40x32 | 14.75 | 55" | 44x40 | 4.68 |
| 38½" | 40x36 | 8.60 | 27" | 44x44 | 9.50 |
| 27" | 40x40 | 9.00 | 40" | 44x44 | 7.55 |
| 38½" | 40x40 | 6.15 | 25" | 48x40 | 12.00 |
| 38½" | 44x40 | 8.20 | 31½" | 48x48 | 8.70 |
| 40" | 44x40 | 7.90 | 38½" | 48x48 | 7.15 |
| 44" | 44x40 | 7.25 | 40" | 48x48 | 7.00 |
| 50" | 44x40 | 5.60 | 44" | 48x48 | 6.40 |

*Tobacco Cloths*

| | | | | | |
|---|---|---|---|---|---|
| 36" | 20x12 | 23.00 | 36" | 36x32 | 10.50 |
| 36" | 20x14 | 22.00 | 36" | 40x32 | 10.20 |
| 36" | 20x16 | 21.00 | 36" | 40x32 | 14.75 |
| 36" | 22x18 | 19.00 | 36" | 40x36 | 9.65 |
| 36" | 24x20 | 17.00 | 36" | 40x40 | 9.20 |
| 36" | 26x22 | 16.00 | 36" | 44x36 | 9.20 |
| 36" | 28x24 | 15.00 | 36" | 44x40 | 8.50 |
| 36" | 32x24 | 13.50 | 36" | 44x44 | 8.10 |
| 36" | 32x28 | 13.00 | 36" | 48x44 | 7.75 |
| 36" | 36x32 | 11.20 | 36" | 48x48 | 6.15 |

■

## *Print Cloth*

*Print cloths* are carded cloths made with the same yarns as cheese cloths, but with more warp and filling threads per inch. They are made *narrow*, up to 35 in., and *wide*, over 36 in. up to 44 in. Extra-wide print cloths up to 81 in. are made for the window-shade trade and other special trades. Print cloths are converted into more different finishes than any other gray cloth.

| | *Widths* | *Constructions* |
|---|---|---|
| Narrow print cloths | 24" to 35" | 56x44 to 72x76 |
| Wide print cloths | 36" to 86" | 56x44 to 80x80 |

| | *Warp Yarns* | *Filling Yarns* |
|---|---|---|
| Narrow print cloths, Wide print cloths | 28s to 30s | 38s to 44s |

*Split print cloths* are woven with two additional selvages in the center. After the goods are finished, the cloth is split down the center, making two cloths out of one. Used for export markets. *Example*: 38" split, 50x40, 7.50 yd. per lb.

*Uses in gray:* Wiping rags, mattress covers, insulations and coverings for pipes and wires, bookbindings, and bases for oilcloths, rubberized fabrics, imitation leathers.

*Finishes used:* Muslin, nainsook, cambric, chased, percale, French, lawn, collar, messaline, canvas, sign and label cloth, schreiner, organdy, mercerized, beetled, imitation chambray, elastic duck, embossed, chintz, cretonne, window holland, caustic-soda plissé crepe.

*Uses in finished state:* Shirts, dresses, shorts, interlinings, aprons, linings, underwear, rompers, pajamas, sheets, pillow cases, window shades, handkerchiefs, artificial flowers, bedspreads, curtains.

*Examples of Standard Constructions of Gray Print Cloths*

| | | | | | |
|---|---|---|---|---|---|
| 25" | 56x44 | 10.55 | 39" | 64x60 | 5.28 |
| 27" | 56x44 | 9.75 | 40" | 64x60 | 5.15 |
| 36" | 56x44 | 7.35 | 42" | 64x60 | 4.92 |
| 38½" | 56x44 | 6.85 | 44" | 64x60 | 4.55 |
| 39" | 56x44 | 6.60 | 45" | 64x60 | 4.65 |
| 40" | 56x44 | 6.60 | 48" | 64x60 | 4.40 |
| 41" | 56x44 | 6.45 | and wider | | |
| 40" | 56x48 | 6.35 | 36" | 64x64 | 5.50 |
| 43" | 56x48 | 5.85 | 40" | 64x64 | 5.00 |
| 45" | 56x48 | 5.65 | 39" | 68x72 | 4.75 |

lem is to so make the fabric that as small a space as possible will be left between the two selvages. These cloths are called "splits," and their excuse for existence lies in the economy of producing two cloths in one weaving operation and one set of finishing operations. They are made largely for export use.

Unbleached cotton goods as they come from the loom are known as gray goods. They are also referred to in a few instances as "brown," as, for example, a brown sheeting. Gray goods are bought and sold by the name, width, construction (thread count per inch), and weight. Also they are distinguished as being either carded or combed. The weight is usually quoted in (running) yards per pound; but for heavier fabrics, such as ducks and osnaburgs, the weight is expressed in ounces per (running) yard. In special fabrics, in which equal breaking strength in warp and filling is required, such as in tire fabrics, the weight is expressed in ounces per square yard.

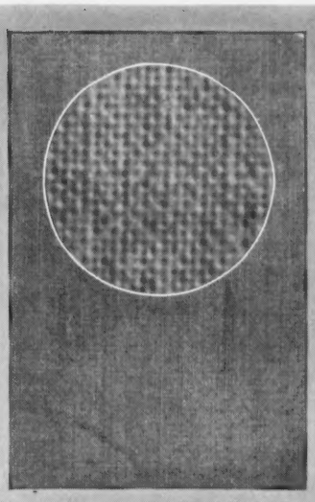
The yarn numbers are very seldom stated. If the cloth is woven entirely with two-ply yarns, it is known as a 2x2. If ply warp and single filling yarns are used, it is called a 2x1. In heavy duck fabrics, where ply yarns are used in filling, they are called double-filling ducks, or "D.F.," irrespective of whether two or more ply yarns are used. Ducks with single filling yarns are known as single-filling ducks, or "S.F."

The following are examples of the ways in which width, construction, and weight are expressed:

Print cloth—38½", 64x60, 5.35 yd. per lb.

Single-filling duck—30", 7 oz., S.F. (oz. per running yd.).

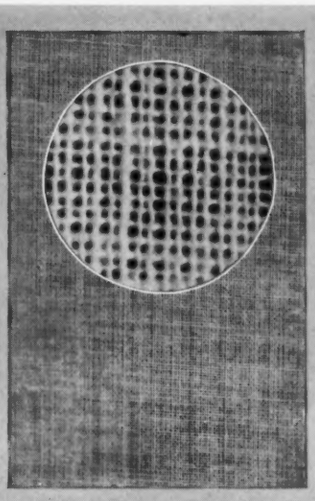
Magnifications are 5½ times true size, which is about the average magnification of pick glasses commonly employed by cotton men.



Reeves Bros., Inc.

**FINE PLAIN**

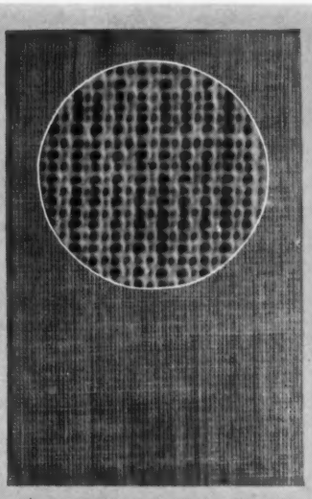
**39", 96x100, 4.15 yd. per lb. combed**



Turner Halsey Co.

**CARDED LAWN**

**40", 72x68, 6.00 yd. per lb.**



Berkshire Fine Spinning Associates, Inc.

**COMBED LAWN**

**40", 88x80, 8.50 yd. per lb.**

| | | | | | |
|---|---|---|---|---|---|
| 27" | 56x52 | 9.00 | 36" | 68x72 | 5.15 |
| 31½" | 56x52 | 7.50 | 45" | 68x72 | 4.20 |
| 38½" | 56x52 | 6.50 | 48" | 68x72 | 3.90 |
| 40" | 56x52 | 6.25 | 41" | 72x72 | 4.40 |
| 41" | 56x52 | 5.85 | 45" | 72x72 | 4.00 |
| 45" | 56x52 | 5.40 | 52" | 72x72 | 3.45 |
| 27" | 56x56 | 8.70 | 56" | 72x72 | 3.10 |
| 38½" | 56x56 | 6.23 | 39" | 70x74 | 4.20 |
| 57" | 56x56 | 4.10 | 39" | 72x76 | 4.25 |
| 36" | 60x48 | 6.70 | 41" | 72x76 | 4.25 |
| 38½" | 60x48 | 6.25 | 38½" | 72x80 | 4.37 |
| 40" | 60x48 | 6.00 | 39" | 72x80 | 4.30 |
| 38½" | 60x52 | 6.00 | 40" | 72x80 | 4.20 |
| 36" | 64x56 | 5.75 | 41" | 72x80 | 4.10 |
| 38½" | 64x56 | 5.50 | 44" | 72x80 | 3.75 |
| 40" | 64x56 | 5.30 | 45" | 72x80 | 3.70 |
| 45" | 64x56 | 4.75 | and wider | | |
| 27" | 64x60 | 7.60 | 39" | 76x84 | 3.90 |
| 28" | 64x60 | 7.30 | 39" | 76x92 | 3.60 |
| 30" | 64x60 | 6.94 | 39" | 80x80 | 4.00 |
| 32" | 64x60 | 6.50 | 36" | 80x80 | 4.35 |
| 36" | 64x60 | 5.75 | 40" | 80x80 | 3.90 |
| 38½" | 64x60 | 5.35 | 52" | 80x80 | 3.10 |

■

## *Fine Plain*

*Fine plains* (also referred to as *gray longcloths*) are finer-yarn cloths than print cloths. They are made with combed yarns or with carded yarns above 42s. A few qualities are made with print-cloth yarns, but they are of higher constructions (sometimes called *gray shirtings*). Fine plains are always finer-constructed cloths than print cloths.

| *Widths* | *Constructions* |
|---|---|
| 36", 40" and wider | 80x88 to 96x120 |
| *Warp Yarns* | *Filling Yarns* |
| 34s to 50s carded or combed | 40s to 65s carded or combed |

*Uses in gray:* Pillow cases, bolster cases, mattress covers.

*Finishes used:* Lawn, organdy, nainsook, batiste, mercerized, percaline, schreinered, muslin, cambric, chintz, cretonne, beetled.

*Uses in finished state:* Shirts, dresses, starched collars, handkerchiefs, curtains, underwear, bedspreads, linings, lamp shades, pillow cases, crib sheets, draperies.

*Examples of Standard Gray Constructions*

| | | | |
|---|---|---|---|
| 39" | 80x88 | 5.00 | carded |
| 40" | 80x92 | 3.50 | " |
| 39" | 96x100 | 4.15 | " |
| 36" | 96x92 | 5.75 | combed |
| 39" | 96x100 | 4.15 | " |
| 39" | 96x120 | 6.00 | " |
| 39" | 90x92 | 5.00 | " |
| 39" | 96x100 | 5.00 | " |

■

## *Lawn*

*Lawns* are fine, soft, sheer fabrics usually made of combed yarns. Cheaper qualities are made with carded yarns finer than print-cloth yarns. The word "lawn" also refers to a medium-starched finish.

*Combed lawns* are made in 30, 36, 40 and 45 in. In 30 in. they are referred to as *India lawns* or *linons*.

| | *Widths* | *Constructions* |
|---|---|---|
| Combed lawns | 36" 40" 45" | 72x68 to 108x112 |
| India lawns | 30" | 64x64 to 96x100 |
| | *Warp Yarns* | *Filling Yarns* |
| Combed lawns | 60s to 80s | 84s to 135s |
| India lawns | as above | |

*Carded lawns* usually have heavier yarns than combed lawns.

| *Widths* | *Constructions* |
|---|---|
| 36" and 40" | 60x48 to 88x80 |
| *Warp Yarns* | *Filling Yarns* |
| 40s to 50s | 54s to 65s |

*Finishes used:* Batiste, percaline, chiffonette, organdy, nainsook, lawn, dyed, printed, friction calendered, mercerized, schreinered.

*Uses in finished state:* Underwear, waists, summer dresses, pajamas, curtains, lingerie, collars, cuffs, infants' dresses, shirts, handkerchiefs, scarfs, lamp shades.

*Examples of Standard Gray Constructions*

*Carded Lawns*

| | | | | | |
|---|---|---|---|---|---|
| 40" | 80x88 | 6.00 | 39" | 68x56 | 8.70 |
| 40" | 80x76 | 6.00 | 36" | 72x60 | 10.00 |
| 40" | 72x68 | 6.00 | 36" | 72x56 | 10.25 |
| 40" | 72x60 | 9.00 | 36" | 60x48 | 10.00 |

*Combed Lawns*

| | | | | | |
|---|---|---|---|---|---|
| 40" | 108x112 | 6.40 | 40" | 80x80 | 9.00 |
| 40" | 96x100 | 7.00 | 45" | 76x72 | 8.00 |
| 40" | 96x92 | 7.50 | 40" | 76x72 | 9.00 |
| 45" | 88x80 | 7.50 | 36" | 76x72 | 10.00 |
| 40" | 88x80 | 8.50 | 30" | 76x72 | 12.00 |
| 36" | 88x80 | 9.00 | 40" | 72x68 | 9.50 |
| 36" | 88x80 | 9.45 | 39" | 68x56 | 11.00 |
| 30" | 88x80 | 11.35 | | | |

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Tire fabric—60", 24 oz. per sq.yd.

Most cotton gray cloths are sold on a price-per-yard basis on terms of net 10 days F.O.B. mill. Twills are usually sold on 3% 10-day basis. Price quotations on wide sheetings and number ducks are based on a standard list or card of fixed prices for each size width and number. These prices are known as the basis, and a discount is allowed off or on this list. The discounts, quoted in percentages, vary according to the rise and fall of cotton prices. For example, "25% off list" means that the price of a particular width and weight of duck is the list or card basis less 25%. This is a convenient method of quoting prices, as it saves issuing new price lists as the cotton market moves up or down.

There are more names than there are fabrics, due to the fact that different finishes are often used on the same gray cloth and the finished cloth often takes on the name of the finish. Fabrics of the same name often differ in appearance due to varying constructions. The names of gray goods usually have a very definite meaning as to the weave, construction, and yarns used; and of course in some fabrics the names are the same whether they are in the gray or finished state—for example, broadcloth. In staple cloths having a large variety of uses, there is one name for the gray goods and a different name for each finish the cloth is converted into. For instance, a standard print cloth can be converted into as many as 30 different finishes, each of these having a different name and a separate use. Many fabrics after finishing bear little resemblance to the original gray cloth.

The majority of fabrics made are plain-woven, carded cloths containing yarns under 42s, the ordinary spinning limit of the bulk of the American crop (Upland cotton $1\frac{1}{16}$ in. and under in length).

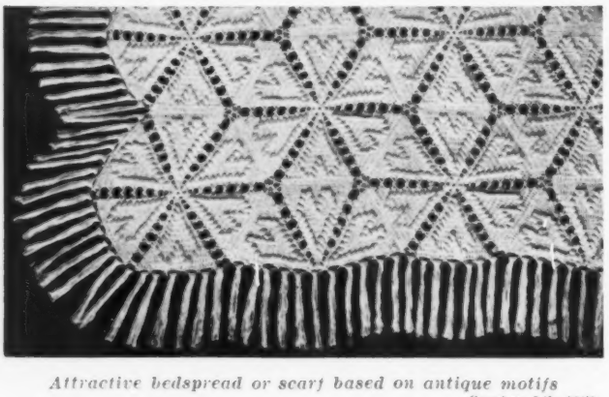
# FROM HORSE-AND-BUGGY DAYS

## *Comes the cotton string knitting vogue, now so profitable for spinners*

***By Mildred G. Barnwell***
*Executive Assistant*
*Southern Combed Yarn Spinners Association*

*A replica of Renaissance lace. Note the cuffs (ruffs), very flattering to the hands, and very smart today.*

*Small handbag of interesting crochet stitch*



*Attractive bedspread or scarf based on antique motifs*
*Courtesy Lily Mills*

*Cotton string of yesterday, rough and of short fibers. Cotton string of today, combed of long staple and mercerized*

WHEN the combed yarn industry was very, very young and there were only two mills in Gaston county, both crude water-driven affairs, the owner of one mill would take his week's production of cotton 12/4 put up on pound cones and, hitching his old gray mare to his squeaky buggy, would peddle it from house to house around the countryside. He boosted the use of cotton yarn for crocheted bedspreads, for hand-tufted spreads, for knitted dishcloths and many other homely uses. Thus was born a southern handcraft, thus were fashioned many fine heirlooms and thus was founded one of the most lucrative vogues of present times.

The demand for cotton-string sports frocks, twin sweater suits, bathing suits and accessories, has been one of the most consistent in the fashion world during the last two seasons. Equally strong has been the demand for handcrafted bedspreads, luncheon cloths and other domestic ornaments of cotton string, a revival of the fine arts of American pioneer life. Instead of abating, the demand for cotton-string goods has increased greatly.

While the broad description of "cotton string" is applied freely to certain cotton knit products now on the market, it in reality covers many different types of cotton yarns. The crude, uneven, rough cotton twine of yesterday has evolved into the mercerized, gassed, double-A quality combed yarn of today. Manufactured by many mills, this finer type of cotton string is put out under various trade names, such as: Hampcord, Old-Fashioned Crochet Yarn, Antique Yarn, Art Yarn, Rod-Twist, and Thrifty-Knit.

Although we may be the proud possessor of a handsome heirloom fashioned by our grandmother's hands from the cotton yarn of that period, we must realize that such an heirloom has its limitations, even though they be softened by time. Handcrafters of today who are busy fashioning heirlooms of tomorrow will leave a precious heritage. Their work may be admired, their patterns may be copied, but added to the mellowness of years and, really, most important of all, will be the blessed sanction of quality.

After all, a finished article can only be as fine as the yarn from which it is made.

ADVERTISING PAGES REMOVED

*Drying and sizing are key operations in finishing cotton-rayon*

# NECKTIE FABRICS

*By Philip Le Brun*

COTTON FABRICS with small rayon jacquard figures are popular constructions among the better class of washable cravats. They are usually woven 24 in. wide, double width, and are then split, either on the loom or on a splitting machine. A typical cloth has 126 ends of 150-denier viscose rayon and 58 picks of 2/80s cotton filling. A good quality of bleached rayon is used for the warp, in order to be sure of obtaining any desired shade without the necessity of bleaching. The cotton filling is mercerized, so as to get more uniform dyeings and better luster in the final finished product. A less expensive fabric has unbleached cotton for the filling. Bleached unmercerized cotton is sometimes used where it is desired to have the lustrous rayon figure stand out as much as possible from the duller cotton background, and at the same time have as bright, clear colors as possible.

Two methods are in use for scouring. One consists of a soap scour similar to the regular silk boil-off. Soap scouring alone takes a considerable length of time to remove all the natural cotton impurities and thus to make certain that the filling is not stiffer than is desirable for this type of fabric. A much quicker scour is a simple treatment in ¾% caustic soda solution just below the boil. Treatment for 1 hr. in the scouring bath is sufficient to provide a soft, easily penetrated cloth for dyeing or printing. A thorough wash and a weak sour in acetic acid follow the caustic scour. This serves to prevent blotches in dyeing, caused by the increased affinity for dyestuffs of local areas having caustic residues.

A small percentage of the total cloth manufactured is dyed in solid colors. Little difficulty is experienced in the dyeing. Ordinarily, developed colors of good fastness to light and washing are used. The major part of the woven production for neckwear use is printed. Patterns are about equally divided between application and discharge prints. Application prints are usually stiffer than discharge prints and require more finishing oil and calendering.

## *Methods of Drying*

The final appearance required by the customer largely determines the method of drying. When a flat, lustrous neckwear cloth is desired, the fabric is dried face down on a dry can. Slightly less luster and a more pronounced figure are obtained by drying with the back of the cloth against the can. In the former case the figure is embedded into the cloth, while in the latter case the figure is made more prominent. Frame drying results in a natural luster and a still more pronounced figure. The jacquard design can be made flatter or may be raised slightly by using more or less lengthwise tension. The more tension used, the flatter is the rayon figure. In a few cases where natural shrinkage and a very pronounced figure are desired, the dry box is resorted to. Loop dryers are used occasionally and results are similar to that of the dry box, except for the repeating bar marks sometimes caused by the loop dryer rods. These are often difficult to remove.

Framing to width after drying is unnecessary, with the exception of loop-dried and box-dried fabrics.

Actual finishing is done on three types of machines, depending on the desired final result. In each case, the finishing solution is almost identical, as a soft, full handle is usually required. About 3 qt. of a good sulphonated olive oil is used for a 15-gal. tub. This may be increased or decreased slightly, depending on the feel of the particular piece of goods.

A raised figure with natural luster against a fairly flat, dull background is obtained by sizing on a two-bowl quetsch and then drying in a dry box. This is followed by framing with as little steam as possible. A slightly flatter result is obtained by using a quetsch-drying-frame range. Here the loftiness of the jacquard figure is determined largely by the lengthwise tension exerted. This method is probably the one in most common use at the present time.

Slightly more mellow handle is obtained by processing on a Palmer, with the face of the goods against the blanket. If the fabric is fed into the Palmer machine with the face against the can, a lustrous mellow cloth results; but, as a rule, it is too flat to satisfy most customers. Few, if any, neckwear fabrics of this type are run through a quetsch and can dried, because the resulting fabric is always baked too hard.

## *Anti-Crease Finish*

The anti-crease finish, which is obtained by the use of synthetic resins, is becoming well known on this type of cloth, although at present only a few companies are licensed to produce this finish. The finish is applied preferably before dyeing or printing, but can be applied afterwards, provided the proper choice of dyestuffs is made. The resin formed within the fiber stiffens the fabric slightly, renders it more resistant to crushing, and increases its strength. A properly processed anti-crease fabric can be laundered repeatedly without affecting the resin to any noticeable extent. Anti-crease neckwear fabrics are finished in the same way as are the washable fabrics previously described.

After sizing, the cloth is given a cold calendering to break down any residual stiffness in the fabric. Hot calendering is avoided, since that would tend to flatten the jacquard figure too much. A well-finished piece of this construction has a lustrous rayon design, which stands out prominently against a duller, flat, cotton background. The cloth should also have a slight inherent roughness, so that the cravat will stay in place once it is tied.

# 1935 and 1936

## *What editors of McGraw-Hill papers think of the future*

### *Construction*

About the end of March, 1935, finally, a sudden spurt in industrial plant construction occurred, and this has maintained its momentum throughout the year. This movement, the beginning of the return to normal, reflects deferred need for plant expansion and improvement, and at the same time indicates a new level of business confidence. Housing construction began to revive about the same time, after having sunk to less than 10% of normal requirements. The new housing activity joined to the revival of industrial construction means that private enterprise is again taking up its commanding position in construction activity.

—F. E. SCHMITT,
Editor, *Engineering News-Record*

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### *Chemicals*

Nor did the depression stunt this rapid growth of chemical industry. All through those hazardous years of 1932, 1933 and 1934 chemicals reported activity at least 20% above the level for industry as a whole. But it was not until 1935 that the chemical engineers really came into their own. Their success in translating the results of laboratory research into profitable plant operations is reflected by a 64% increase last year in contracts awarded for new construction (from $22,187,000 in 1934 to $35,860,000 in 1935). It is difficult to estimate the number and volume of these that will blossom out into new plants during 1936 but they are certain to exceed last year's crop by at least 25%.

—S. D. KIRKPATRICK,
Editor, *Chemical and Metallurgical Engineering*

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### *Metal Working*

A year ago the metal-working industry was subsisting on hope. Today it has more substantial diet. Many companies secured enough business during the year to enable them to show a profit and most of them are looking forward to 1936 with the expectation of further gains. Two sections of the industry have cashed in on their efforts to make and sell goods in the face of unfavorable conditions—the automobile manufacturers and the machine tool builders.

—KENNETH H. CONDIT,
Editor, *American Machinist*

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**"THE general business outlook for the coming year, in my opinion, is exceptionally good. This in spite of the fact that we are faced with an election year and what is hoped will be a short session of Congress. It must be remembered, too, that substantial gains have been made in many basic industries in 1935. While we may look for continued improvement, this may not be as spectacular as that we have witnessed during the past year.**

**"While we are not completely out of the woods of depression it is to be noted with satisfaction that activity in the capital goods industries is increasing at a good pace. It is this activity that is influencing the entire recovery movement and which will have a tremendous effect on the absorption of large numbers of our unemployed and on an increase in consumer buying power. Present indications are that 1936 will see a further healthy movement in that direction.**

**"Altogether I think business activity will average 75% of normal, which will be a gain of 15% over 1935."**

**—MALCOLM MUIR,**
***President,***
***McGraw-Hill Publishing Co., Inc.***

### *New Products*

Products of previous years are being out-dated because of the new styling, or are obsolete because they are lacking in mechanical refinements. Markets for all types of metal products such as production and construction machinery, automobiles, railroad equipment, airplanes, domestic appliances and non-mechanical metal goods have taken on new life. Indications are that we are now witnessing only the beginning of another period of great activity.

—G. F. NORDENHOLT,
Editor, *Product Engineering*

### *Power*

Prior to 1935 the all-time yearly "high" of utility output was in 1929—97.3 billion kilowatt hours. As this is written (about the middle of December) it appears that 1935 will achieve 98 billion. Weekly peak loads are now running about 7% above the corresponding weeks of 1929 and about 14% above 1934. With this is a simultaneous growth in the loads of the power plants serving individual industrials, buildings and institutions.

—PHILIP W. SWAIN,
Editor, *Power*

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### *Metal Mining*

Barring unforeseen events the improvement that has taken place in the metal mining industry during 1935 should continue through 1936, and the prosperity prevailing in gold and silver mining should extend to copper, lead and zinc. Domestic consumption of the major metals in 1935, as compared with 1934, shows an increase of 38% for copper, 13% for lead and 30% for zinc. Domestic stocks of metal were reduced during 1935 as follows: Copper, from 354,500 tons to about 220,000; lead 235,500 to 225,000; zinc 119,800 to 85,000.

—DR. H. C. PARMELEE,
Editor, *Engineering and Mining Journal*

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### *Transit*

Revenues of the transit industry in the United States for 1935 were the largest for any year since 1931, totalling well over $1,100,000,000. While the 1935 revenues showed practically no gain during the first five months as compared with 1934, from the middle of June onward every week recorded a substantial advance over the corresponding week of the year before. For 1936 the outlook is more encouraging than it has been for a long time. Prospects are that the upward trend of riding and revenue will continue. Reports from operating companies all over the country indicate that expenditures for improvements and maintenance in 1936 will be even greater than in 1935.

—JOHN A. MILLER,
Editor, *Transit Journal*

# TEXTILE WORLD ANALYST

## *A few predictions for 1936 general and textile business*

THIS month, others will fill this page for us. We shall devote it to a few predictions, from varied sources, of the trend of business in general, and the textile industry in particular, in 1936.

DANIEL C. ROPER, Secretary of Commerce: Just as the forces of depression were cumulative in their effects, so the forces of recovery operate to expand activity in an ever-widening circle. In dealing with the paramount problem of unemployment, we may take courage and renewed hope from the steady expansion of production and distribution in the past year. Perhaps the most striking conclusion warranted by a review of the developments of the year is that we now have a broader and firmer foundation than in the preceding years on which to build in 1936.

LINCOLN CROMWELL, chairman, Wm. Iselin & Co., Inc.: The last six months have raised the courage of the whole country, so textile people face the new year with a measured optimism. They are properly glad to be still alive, and surface indications of demand and supply promise fairly steady employment. Underlying conditions qualify this confidence in their near future. None can tell whether the new laws will bring peace or war into the labor situation; what taxes and restrictions may be forced on management; how government control will affect the price of cotton and wool in this country, or of silk in Japan; nor how the turmoil of the election year will affect buying. But hope is stronger.

SCHEUER & Co.: The outlook for general industrial betterment in 1936 is fairly clear. Not only are economic forces operating in that direction, but the national Administration too will use all its influence to aid in promoting industrial expansion. However, in judging the actualities of the textile outlook, we must be careful to differentiate between those forces which are general and those which more specifically influence conditions within the industry. We look for a nip and tuck year in textiles led off by a good early spring season. At the least, January, February and March should produce satisfactory results. Current values in all departments encourage ample preparation of merchandise for the first quarter.

GUARANTY TRUST CO. OF NEW YORK: Business enters the new year in the most favorable position, from the short-term point of view at least, that has been observed since the depression began . . . . . Not the least important feature of the situation, as far as the outlook for 1936 is concerned, is the very definite improvement in business sentiment that has taken place, particularly in the last few months. This gain in confidence is due in part to multiplying evidence of greater activity at home and abroad. Revival is world-wide and has proceeded faster in many foreign countries than in the United States.

JOHN W. O'LEARY, president, Machinery and Allied Products Institute: Revival of courage and confidence in the future were among the principal gains made during 1935. We find ourselves emerging from a night of economic darkness, and now we are conscious of a dawn. We face 1936 with a renewed spirit and faith that the form of government and economic system which made possible the progress of the past will be continued in the future and not discarded as lightly as was threatened.

### *Textile Price Trends*

No marked trend is reflected in TEXTILE WORLD's price index numbers for December. In the cotton group, the only change from the previous month was a gain of one point in the yarn index. Raw wool, tops, and yarns moved evenly upward three points each, while the usually lethargic wool-cloth index remained stationary. During 1935, the cotton group showed no definite trend; the wool group, after sinking from January to April, showed a steady rise thereafter and ended the year at the high point; and raw silk rose spectacularly from March to November, weakening somewhat in December.

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TABLE I. CARDED FABRIC MARGIN

| Date | Margin in cents | Date | Margin in cents |
|---|---|---|---|
| August, 1933 | 21.4 | May, 1935 | 16.0 |
| October, 1933 | 19.1 | June, 1935 | 16.5 |
| January, 1934 | 18.4 | July, 1935 | 15.2 |
| April, 1934 | 17.6 | August, 1935 | 17.1 |
| July, 1934 | 15.5 | September, 1935 | 17.9 |
| August, 1934 | 16.6 | October, 1935 | 17.7 |
| September, 1934 | 18.6 | November, 1935 | 16.4 |
| October, 1934 | 17.4 | December, 1935 | 16.2 |
| November, 1934 | 15.8 | Dec. 4 | 16.0 |
| December, 1934 | 16.2 | Dec. 11 | 16.4 |
| January, 1935 | 16.2 | Dec. 18 | 16.5 |
| February, 1935 | 16.0 | Dec. 24 | 16.2 |
| March, 1935 | 15.9 | Dec. 31 | 15.7 |
| April, 1935 | 16.1 | | |

TABLE II. CARDED YARN MARGIN

| Date | Margin in cents | Date | Margin in cents |
|---|---|---|---|
| August, 1933 | 23.5 | May, 1935 | 13.8 |
| October, 1933 | 20.0 | June, 1935 | 14.5 |
| January, 1934 | 18.3 | July, 1935 | 14.3 |
| April, 1934 | 15.9 | August, 1935 | 15.3 |
| July, 1934 | 14.7 | September, 1935 | 15.4 |
| August, 1934 | 15.3 | October, 1935 | 15.8 |
| September, 1934 | 15.6 | November, 1935 | 16.3 |
| October, 1934 | 14.6 | December, 1935 | 16.3 |
| November, 1934 | 13.5 | Dec. 4 | 16.7 |
| December, 1934 | 13.5 | Dec 11 | 17.2 |
| January, 1935 | 13.5 | Dec 18 | 16.2 |
| February, 1935 | 13.0 | Dec. 24 | 15.9 |
| March, 1935 | 14.4 | Dec. 31 | 15.8 |
| April, 1935 | 14.1 | | |

▼ ▼ ▼

## *Textile World's Price Index Numbers*

| Date | Cotton Index Numbers: Cotton | Yarns | Gray | Colored | Wool Index Numbers: Wool | Tops | Yarns | Cloth | Silk Index: Raw Silk |
|---|---|---|---|---|---|---|---|---|---|
| July 31, 1914 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1932, average | 51 | 76 | 73 | 100 | 78 | 97 | 115 | 128 | 34 |
| 1933, " | 84 | 116 | 110 | 113 | 116 | 135 | 139 | 181 | 35 |
| 1934, " | 132 | 142 | 139 | 141 | 138 | 159 | 167 | 206 | 28 |
| Jan. 1935 | 135 | 138 | 137 | 140 | 124 | 132 | 154 | 190 | 32 |
| Feb. 1935 | 134 | 138 | 136 | 140 | 116 | 124 | 152 | 190 | 31 |
| Mar. 1935 | 127 | 136 | 134 | 139 | 108 | 118 | 148 | 190 | 29 |
| Apr. 1935 | 127 | 135 | 131 | 138 | 105 | 114 | 148 | 190 | 30 |
| May 1935 | 132 | 137 | 133 | 139 | 108 | 116 | 150 | 200 | 30 |
| June 1935 | 128 | 138 | 133 | 139 | 123 | 135 | 155 | 200 | 30 |
| July 1935 | 131 | 140 | 130 | 139 | 123 | 135 | 155 | 200 | 33 |
| Aug. 1935 | 125 | 139 | 131 | 139 | 123 | 135 | 155 | 200 | 37 |
| Sept. 1935 | 120 | 135 | 135 | 139 | 127 | 137 | 156 | 200 | 41 |
| Oct. 1935 | 123 | 140 | 135 | 140 | 131 | 140 | 162 | 208 | 45 |
| Nov. 1935 | 130 | 145 | 138 | 145 | 137 | 147 | 167 | 208 | 45 |
| Dec. 1935 | 130 | 146 | 138 | 145 | 140 | 150 | 170 | 208 | 43 |

Note: All cotton indices since Aug. 1, 1933, include processing tax.

# Overseers'

**THIS DEPARTMENT**

***offers practical material for the use of overseers in meeting the daily problems of their jobs. It includes valuable suggestions on industrial relations in the handling of which both the overseer and the superintendent are involved. Under the heading "Kinks" appear short cuts in mill technique which have already solved problems in at least one mill and may help in yours. The central panel features material from a mill superintendent's diary which offers practical hints on various matters taken from actual mill experience. We solicit your contribution to this department—see panel on opposite page for details.***

▼

## *From a Superintendent's Diary—*

## MORE ABOUT EMPLOYER-

***(Based on actual mill notes)***

I SEEM to find my diary filled these days with notes about employer-employee relations, and I'm sure it's because it is one of the most important problems we have to face, what with the Wagner-Connery Act and all. Everyone knows how important the overseer is in building and keeping good relations, but frequently superintendents and major executives have the attitude that the problem is not important enough for their attention and leave everything up to the overseers.

I have in mind a couple of cases that have come to my attention lately. In one case, the manager was forced to give three 10% wage reductions during the depression, but he promised that, as business recovered, he would see that the cuts were given back. As times got better, he sent word down the line to restore first one, and then a second reduction. He was pretty sore thereafter when he heard there was a certain amount of grumbling among the operatives, and he accused them of ingratitude and all such things. It took him six months to find out what the trouble was. He had promised to restore the "cuts," but his payroll man had merely gone ahead and added 10% to wages each time. Obviously, a 10% cut from the rate that previously prevailed was more than a 10% raise from the lower levels. The workers thought the promise was not being lived up to and that they were being chiseled. The point I want to make is that the manager never

## *Employer-Employee Relations*

*Editor, Overseers' Corner:*

Mr. Williams, in his comments in the November issue, has hit upon a vital subject, namely, "Employer-Employee Relations."

During the last year, a large New England textile center has had a stimulating series of examples that this is a two-way matter, and that gratitude and appreciation are tangible factors in industrial relations.

More than a year ago, during the general textile strike, the employees of this city remained loyal and refused to walk out. Shortly thereafter, the management had opportunities to bid on large government contracts. In appreciation of the attitude shown by the help, the management sharpened its pencils to be sure to get the business, even though there was no profit. This was done deliberately so that work might be provided for the great army of operatives who had proven their loyalty. The contracts were secured and employment increased.

This very practical expression of appreciation became known to the help and has produced the finest spirit of cooperation that has existed for many years in a community that was once a hot-bed of textile disorders.

H. D. G.

*Editor, Overseers' Corner:*

The overseer is the key man in employer-employee relations. He receives and introduces the new worker to his job, and at the very outset can make or break himself by the first impression he makes on the worker.

The responsibility for informing workers about the policies of the company rests on the overseer. Information regarding wages, hours, working conditions, possibilities for promotion, health and safety programs must be passed on to the worker. Besides the dissemination of correct information, the overseer is responsible for silencing all false rumors. It is up to him to create a "boost the company" rather than a "knock the company" attitude.

Finally, an overseer's reputation for fairness has much to do with the building of good morale in his department. He is the connecting link between management and the workers and is in the right "spot" to build a healthy employer-employee relationship.

WALLACE GILL

*Editor, Overseers' Corner:*

If employers would devote half the effort toward developing a more harmonious relation between the management and the men that soap-box orators and radical labor agitators use to stir up trouble, labor troubles would decrease and employees would be convinced that their employer is their friend instead of thinking that he is a robber and exploiter.

Closer contact should be established between management and employees. Subordinates often lack the ability or diplomacy to handle grievances and dismiss the employee with a curt answer, thus leaving fertile ground in which agitators can plant the seeds of communism.

Often a few tactful words of explanation from an able manager or superintendent would leave the employee with a kindly feeling toward the management and would thwart the efforts of professional trouble-makers.

S. K.

## *Space for Clothing*

*Editor, Overseers' Corner:*

One of the many little things which plague the mill superintendent is that of allocating space for clothing, and particularly for shoes. A mill employing a number of women finds this a problem in these days of high heels.

We have found the easiest solution is to install a set of shelves and partition them into small lockers about 12 in. wide. Each locker has a pair of pegs on which the girl can hang her shoes and there is room enough on the bottom board for her folded coat. The lockers are located in the women's rest room.

F. L.

## *Promptness in Dealing with Operatives*

*Editor, Overseers' Corner:*

Yes, there is no doubt about it. As an overseer myself, I know full well how often the overseer is late in keeping an appointment with an operative. Too, I know that what detained me was far more important than what benefits or information I will receive from my operative.

# Corner

## EMPLOYEE RELATIONS

*By John Williams*

considered it worth his while to follow through on his instructions, and he had six months of labor discontent as a result.

The other case was where a worker came into the plant four years ago and started at 35c. per hour. By this year, his skill had increased so that he had been raised to 48c. per hour (all figures have been reduced to the old 48-hour week basis to make them comparable). A new man was needed in the department in a hurry and the superintendent, without thinking, authorized a pay of 46c. per hour for the green worker. In a couple of days the old worker quit and the company lost a valuable operative. It turned out, upon investigation, that the old worker had been perfectly satisfied with his rise from 35c. to 48c. per hour, but his pride was hurt when a green worker was placed next to him at 46c. per hour. It was just the same as telling the old worker that he really wasn't much good as his four years of effort only meant that he was worth 2c. an hour more than a green recruit.

Such things show how misunderstandings can lead to trouble and everyone should strive to avoid them. I think that it is the duty of overseers to report to superintendents at once any cases where there may be misunderstandings, and for superintendents to pass the word on up if they can't fix things. If the superior has the attitude that he can't be bothered, that's his error; the subordinate has done his duty and will be recognized in the long run.

BUT unless the need is great and the business urging, the overseer should make every effort to keep his appointments on time. With too many overseers, "being late" is a habit, practised, unconsciously perhaps, on the operative to impress him (the operative) with the overseer's importance.

The operative *must* be on time. Should he be late, his excuse or reason for being late will only occasionally be listened to. Therefore, doesn't the overseer at least owe the worker some sort of explanation, a word of apology?

No overseer has ever hurt his standing by explaining or apologizing to a worker. The worker is made to feel that his time, too, is of some importance. He is made to feel that he has a certain part in the operation of the company that is definitely valuable.

The worker, when explained to, is made to feel that he is *somebody*. Such an action will cement the good-feeling between worker and overseer. It will breed understanding and iron out many difficulties that might otherwise assume serious proportions.

Yes, the overseer is often late. Often there is a good reason for it. His time is worth more than the operative's. BUT he *does* owe the waiting operative an explanation. With it, "too late" has been known to prove a benefit; without it, the "sloppy" behavior of the overseer either transmits itself to the worker or disgusts him. In either case, there is a very definite loss.

Respectfully Submitted,
WILL HERMAN.

## KINKS

### *Snarls in Flyer Spinning*

There is a slight difference in the drag in flyer spinning, due to the direction of the lifter plate. When the lifter plate is pushing the bobbins upwards, the drag is greater than when the lifter plate is descending. When spinning yarns to the count limit, where every assistance is required to obtain a good spin, the least practical drag is imposed on the yarn, with the result that the yarn often snarls on the downward traverse of the lifter plate.

I came across a case like this not long ago and the overseer was about to place more tension on the yarn, which would probably have resulted in more broken threads. It was noted that the lifter plate was traveling faster than necessary to make good bobbins, so, bearing in mind the above premise that a falling lifter releases the drag, I advised him to reduce the lifter speed. The purpose of this was to increase the tension when the lifter plate traveled downwards, and it was successful in preventing snarls. Moreover, less power was consumed with the lifter going more slowly.

GEORGE HENDRICKS

### *Skips in Knitting Double, Plush Fabrics*

In knitting double, plush fabrics for overcoatings on spring-needle machines, skips of the backing yarn or loose loops on the back sometimes occur. Obviously, it would appear that the backing wheel was not looping the yarn about the needles properly. In setting the machine, however, a lot of time may be wasted in looking for the trouble at the backing wheel and setting it differently; but the skipping may not be due to this cause. There may be drop stitches at the binder, or tie-in, stitch wheel. In this event, there is nothing to hold the backing yarn in the needles and an extra skip or float is made. The trouble is remedied by eliminating the drop stitches at the binder feed.

G. L. L.

### *Matching Piece Goods*

The matching of piece goods that are rolled on tubes can be conveniently accomplished by the following method: Let the machine operator cut a swatch, about 3 in. wide, from each end of the price; mark the first piece No. 1, the tube-end swatch No. T1, and the outside-end swatch No. 1; carry this out with consecutive numbers on each piece.

To match the goods, check the shade from end to end and from piece to piece by comparing these swatches with one another and with a sample approved by the customer. If any pieces are found to be off shade on the tube end, they can be rerolled to bring the bad end outside. When the goods are ready to be ticketed, a note can be sent along with them to show the numbers of any pieces that must be marked as a separate shade. This method eliminates the handling of any pieces except those that must be fixed up.

PHILLIP DODGE

## CONTRIBUTIONS

*to the "Overseers' Corner" will be paid for without regard to length. We will be glad to use letters discussing the super's diary or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute kinks will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. If these pages interest you—contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York, N. Y.*

# QUESTIONS AND ANSWERS

## *Source of Cotton Waste*

*Technical Editor:*
I am sending two samples of cotton waste for your opinion. One man believes them to be the product of the dust chamber. Another believes them to be mostly regenerated cotton and dust (shearings, etc.) on account of oil content used in the process of garnetting. Also note the partly torn threads, and the starch, which could be only in raw, sized cotton cloth. (8262)

The samples appear to be dust chamber droppings or lint from reclaimed rags or cloth, such as rags from the cloth room and weave room, that have been put through a waste picker. The samples could be from the air chambers of a regular picker, or waste that has collected within the cages or screens, also it is similar to clearer waste from a card near the feed roll and licker-in. The samples are free from leaf and neps and, therefore, appear to be from reclaimed stock, not necessarily rags. For example, they could possibly be reclaimed strips from a card, but the fibers appear too short and dusty for this. We might add that there is a musty smell, which generally is connected with a dust-collecting chamber.

## *Sizing Acetate Yarn*

*Technical Editor:*
Will you kindly advise us as to the proper amount of gelatin and softener to be employed in the warp sizing of acetate yarns. We should like to know also whether the same formula can be used for sizing the various brands of acetate yarn or whether the proportions of gelatin and softener should be adjusted for various types of yarns. In addition, we shall appreciate your opinion as to the proper temperature for sizing acetate yarn and the speed at which sizing can be carried out. (8283)

It is impossible to give a definite reply to this inquiry, as the type of fabric in which the warp is to be employed and type of equipment available are not known. In general, the solutions used for acetate are much more concentrated than those for viscose, and may run as high as 1 part of gelatin to 2 parts of water. However, there is a great difference in gelatins, and the strength of the particular product used is a factor in determining the amount needed. Some acetate warps are sized with merely a mixture of gelatin and glycerin, while others must be sized with a mixture of gelatin; glycerin or diethylene glycol, etc.; and a softener, such as sulphonated coconut oil.

The softer varieties of acetate yarn must be sized with greater amounts of gelatin, whereas the amount of softener used does not need to be increased; in other words, a hard, firm-feeling acetate yarn requires much more softener in proportion to the gelatin than does a soft-feeling yarn.

As far as temperature is concerned, if a steam jet is used on the acetate yarn just before it enters the size box, the temperature can be cut down to about 140° F. If the steam jet is not used, and one has difficulty in wetting-out and penetrating the acetate warps, the temperature can be raised to about 160 to 165° F.; this, however, is not a good temperature at which to apply a gelatin size.

The speed of the slasher depends upon the number of ends, the nature of the squeeze rolls in the slasher, etc. In general, the slasher can be run just as fast as possible, consistent with taking the sized warp off the slasher thoroughly dry. With a certain number of ends, it might mean that the slasher can only travel 16 yd. per minute, whereas with a fewer number of ends, better heating and drying facilities, and a greater number of drying cans, the slasher may be run as high as 40 yd. per minute.

## *Army Greatcoat*

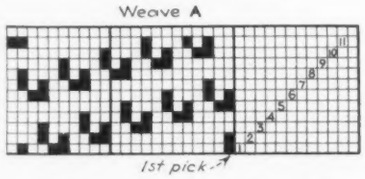
*Technical Editor:*
I am inclosing a piece of khaki. I would like to have you look this over and tell me whether the weave can be duplicated on a plain loom or whether it is a leno weave. If it is a weave that cannot be made on a plain loom, I wonder if you know of any weaves whereby I could get this effect of a smooth face using worsted warp and wool filling. (8275)

Examination of the khaki swatch shows that the weave employed does not require a leno type of loom, but can be woven in any dobby loom of 12-harness or greater capacity. The weight of this cloth is around 26/27 oz. per yard and it is 56 in. wide inside lists. It is used, presumably, for army greatcoats.

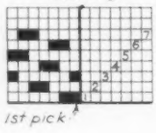
The following construction, it will be noted, has an extremely firm and solid foundation—so much so, in fact, that trouble in weaving may be met with. By way of minimizing this weaving difficulty, it is suggested that this particular weave be woven with the fibrous side up (i.e., back up). This method will be found to be beneficial, as it will make the harness lifts light and put considerably less strain on the loom during the weaving operation. The construction:

12 reed, 5 and 6 in dent, 75 in. reed, 4,950 ends, 60 picks
Warp yarn: 2/36 worsted
Filling yarn: 2½-run woolen

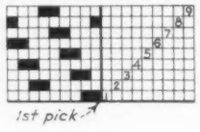
Weave A




Weave B




Weave C




Finished weight: 26/27 oz., 56 in. wide
Finished-width shrinkage: 25%
Finished-length shrinkage: 12%

The following is another suitable construction, which, besides being more economical in the manufacturing processes, constitutes a more practical weaving job, and yet gives the same weight finished, as well as a similar diagonal effect:

14 reed, 3 and 4 in dent, 75 in. in reed, 3,675 ends, 48 picks
Warp yarn: 2/24 worsted
Filling yarn: 2-run woolen
Finished weight: 26/27 oz., 56 in. wide
Finished-width shrinkage: 25%
Finished-length shrinkage: 12%

The most common type of khaki fabric, which, in accordance with Government specifications, is now accepted as standard, is made with woolen yarns, warp and filling, employing the 2/2 twill. The weave characteristics are completely concealed after finishing. The name "khaki" is a Persian term signifying "like the earth"; and in order to obtain the correct hue, the following colors require to be blended in suitable and correct proportions: drab, bronze, brown, sage-green, buff, and light blue. The color of the sample submitted is much too green in hue to justify the name "khaki" and would, at least for Army purposes, be deemed quite unsuitable. By the use of the 2/2 twill pseudo weave, a similar weight can be obtained and without sacrifice of the fine-weave effect. Like all cloths using warp pseudo weaves, the construction of this type has a predominance of warp ends over picks; i.e., warp set. The construction is as follows:

10 reed, 4 in dent, 75 in. in reed, 3,000 ends, 24 picks
Warp yarn: 2-run woolen
Filling yarn: 1½-run woolen
Finished weight: 26/27 oz., 56 in. wide
Finished-width shrinkage: 25%
Finished-length shrinkage: 12%

The finishing processes for all fabrics suggested above are as follows: Full to 57 in. wide, scour, and wash off. Dry, decate, allow to set, and cool. Brush, shear to desired clearness, press, and steam.

## *Winder Speeds*

*Technical Editor:*
Kindly explain how to find the speed of a Foster winder, Model 101, when the speed of the motor is 1,740 r.p.m. and the roller diameter is 2½ in. (8270)

Since the Model 101-B is sometimes referred to as Model 101, we are giving the speed formulas for both. In each case the constant 0.218 converts revolutions per minute to yards per minute when a 2½-in. roll is used, and the answer is the surface speed of the roll in yards per minute.

Model 101:

$$\frac{\text{R.p.m. motor} \times \text{In. dia. lower pulley} \times .218}{\text{7 in. (dia. roll pulley)}} = \text{Y.p.m.}$$

Model 101-B:

$$\frac{\text{R.p.m. motor} \times \text{Teeth motor gear} \times .218}{\text{Teeth roll-shaft gear}} = \text{Y.p.m.}$$

# QUESTIONS AND ANSWERS

## *Holes in Leg Fabric*

*Technical Editor:*
We are inclosing four stockings having holes in the leg fabric. These holes are showing up after the manufacturing processes are completed. We should like to have your conclusions as to the probable causes. (8254)

We are of the opinion that the holes are from different causes, but that all occurred in the gray goods. On two of the stockings, with the hole near the same point in the ankle, the appearance is that the stockings have been bruised or cut between two metal objects. A hole of this kind is frequently made by the knitter in removing the heavy welt rods from the welt with one hand holding one end of the rods and allowing the opposite end of the rods to flare out and strike the ankle portion of the leg against the bed plate of the machine. Sometimes the fabric is only partially cut and gives way when degummed and boarded. These bruised spots showing a chafed or frosty spot in the gummed stocking can easily be detected in the gray by close inspection. If the knitter is removing his welt rods in the manner described, you can be assured of holes of this character. The knitter should be taught to remove the welt rods with one hand and lay them in the other hand to carry.

This type of hole can also be caused by the knitter striking the stocking against the bed plate with the handle or blade of his scissors while cutting his strings. Holes similar in appearance may be caused by the striking of a heavy ring on the boarder's finger against the stocking on the metal form.

Another one of the stockings, with two small chafed holes side by side in the ankle and a partially cut stitch and a drop stitch near by, has apparently been caught in the door of a dyeing machine or run over by a truck wheel.

The appearance and character of the holes all indicate purely mechanical defects, and they can be traced down by careful inspection. There is no indication of beetle or other insect damage and no evidence of chemical burns.

## *Silk-Loom Pick*

*Technical Editor:*
Will you kindly advise me the correct time of the pick in relation to the crank on a Crompton & Knowles silk loom with a 52½-in. reed space, running a taffeta crepe or a satin crepe. Also, what is the proper position for the batwing shoe on the picking shaft? Is there a definite position for the shoe, especially a new shoe? (8292)

Your inquiry would be less difficult to answer definitely if you had specified the type of loom you have. However, we shall assume that it is a 2x1 of the most common type. At the moment that the pick starts its motion, the crank should be slightly over top center, which would place the reed about 2¼ in. from the fell of the cloth. Sometimes it is necessary to throw the crank gear over one tooth. The point of the shoe, when viewed

downward from the back of the loom, should be at least ¼ in. from the surface of the bottom shaft. In the case of a new shoe, this setting could be a trifle more than ¼ in.; but it is safer to have all shoes alike. If we knew the exact type of loom, we might be more specific regarding this matter; but we are confident that, if you set the shoe as directed, you will have plenty of power and a smooth-running loom. Incidentally, your reed space—52½ in.—is an unusual one.

## *Distorted Wales in Full-Fashioned Hosiery*

*Technical Editor:*
We are inclosing a stocking which is a good example of a trouble we have run into recently. The wales next to the seam are distorted. This distortion is done on the boarding forms and occurs only on the medium chiffon numbers; that is the 4- and 5-thread.

This distortion can be made at will by the operator. If the stocking is boarded so that the seam is placed on the other side of the form than usual, the distorted stitches are found next to the seam, but on the other side of the seam. If the operator is careful not to run his fingers down the side of the board in straightening his seam, no distortion occurs.

This all appears to suggest that the entire trouble is due to the improper technic of boarding. Stockings given an additional boil-off in 1% soap solution after they have been dyed but not boarded are much improved. We recently changed over to a sulphonated oil, modified alkali boil-off, and it seems that this trouble coincides with the change. The fact that an additional boil-off in soap partly overcomes the trouble led us to believe that the boil-off was the cause of the trouble. However, when large lots were run through the dyehouse, using the soap boil-off, the same trouble with the seams persisted.

To determine whether or not the finishing materials were at fault stockings were boarded in the boiled-off state, but not dyed or finished. In all cases, stockings which showed the distortion in the finished state also showed them directly after boil-off; that is, after boarding. The distortion cannot be seen on examining before boarding.

We checked up on the soakings, and tried various soakings at different pH's, but the trouble still persists. We even tried out a lighter seaming yarn, but the trouble was not overcome.

We believe that the trouble lies in the boil-off, and our work seems to indicate such. Yet if we cannot prove our contention on a large scale, some other factors are involved. The trouble can be overcome by more careful boarding, but that would mean a decrease in production, which is not desirable.

Your consideration of this problem will be greatly appreciated. (8255)

We believe that the trouble shown in the sample submitted is one that will have to be corrected in the knitting and seaming room and not in the dyehouse and boarding room. The sample clearly shows that the back seam has been repaired or re-seamed by the back seamer, indicating that the seam was first put in too heavy or unevenly and that the back seam was raveled out below the narrowing marks and re-seamed. This operation is very likely to result in distorted wales next to the back seam. We name this only as a contributing cause for the trouble shown in sample submitted. We understand that you are having considerable trouble and we would not take the position that it is at all caused by the re-seaming operation.

From our examination of the sample as a whole, we may say that stocking first has the appearance of being a narrow knit stocking; that is, knit on a head with a good many needles out on each side. It is also loosely knit, which encourages the distortion of the wales. The back seam is entirely too heavy and too tight for a stocking of the type and weight of the sample. The back seam shows strong evidence of having been made while the selvage was still in a moist condition from the knitting machines. If this is correct, we advise that the goods be thoroughly dried before the back-seaming operation. We also recommend that the seaming be done with lighter thread and easier tension, with less wales or bite in the seam.

It is our opinion that the distorted wales are being produced partially in the gray inspecting room, where the inspecting forms employed are stretching the stockings too much, and, with a heavy unwieldy back seam, the adjoining wales are forced to yield into a distorted condition. This same condition carries on in a more marked way in the boarding operation while the fabric is wet and soft and the threads are more easily slipped. We believe that a close follow-up of these suggestions will eliminate the trouble.

## *Chafe Marks in Satin*

*Technical Editor:*
Will you kindly advise us if there is any way to eliminate the marks in the inclosed piece of satin? We tried to remove these marks by using chafe eradicator, but it did not help. (8282)

The black satin sample shows an all-over chafe haze with a few severe chafe marks. The condition can be helped to a large extent by changing the regular finishing routine. The suggested finishing method is as follows: Dry as usual; frame; finish on a Palmer or sizing frame. Suggested finish to a 10-gal. mixture is 2 qt. of a soft gum finish, 3 qt. of a hard gum finish; 1 qt. of sulphonated olive oil, and 1 qt. of chafe eradicator. Calender. After calendering, the satin is rubbed on any standard make of machine. A good rubbing oil can be made by diluting 1 pint of denatured olive oil to 1 gal. with trichlorethylene or other non-flammable solvent. A final framing with very little steam may be necessary. When the rubbing is done after the first framing in the usual sequence of operations, the ensuing processes, especially calendering, tend to bring out the chafe once more. Very severe chafe marks may require a hand rubbing, using a felt block saturated with rubbing oil in addition to the machine rubbing.

# THE PERSONAL PAGE

**AT A MEETING of the board of directors of the McGraw-Hill Publishing Co., Inc., held on Dec. 27, 1935, James H. McGraw, the founder of the company and its head for more than 50 years, resigned as chairman of the board and was elected honorary chairman. He will remain as a member of the board.**

**James H. McGraw, Jr., who has been connected with the company for the last 20 years, was elected chairman of the board. He has served as treasurer and was executive vice-president and vice-chairman of the board at the time of his election.**

**Malcolm Muir, president of the company since 1928, continues in that capacity.**

**Alfred Terrell,** of New York, has been elected president and treasurer of the Roanoke Mills Co. and the Patterson Mills, both of Roanoke Rapids, N. C., succeeding **S. T. Pearce,** resigned. Mr. Pearce also resigned as vice-president of Rosemary Mfg. Co.

**Dr. Claudius T. Murchison,** president of Cotton-Textile Institute, has been elected chairman of General Arbitration Council of the Textile Industry to succeed **George A. Sloan.**

**Waite C. Hamrick, Jr.,** has become president of the Hamrick group of mills at Blacksburg and Gaffney, S. C., succeeding his father.

**William van D. Jewett,** vice-president of United Merchants & Mfgrs. Management Corp., has resigned to join Barnes Textile Associates, Boston.

**Craig Smith,** for the last several years assistant to the president of Avondale Mills, Birmingham, Ala., has been made a vice-president and a director of the company.

**Wellington Rindge,** for more than a decade a partner in Parker, Wilder & Co., New York, has retired.

**John C. Donaldson,** who joined Nashua Mfg. Co. several months ago, after being with Hamilton Woolen Co., has been made sales manager of the company, succeeding **Charles V. Ryer.**

**L. S. Lee,** for some years secretary of the Bruck Silk Mills, Ltd., was appointed to the dual position of vice-president and general manager.

**E. A. Sale** has been elected vice-president of the Pannill Knitting Co., Martinsville, Va., succeeding **J. C. Shockley, Jr.,** who resigned.

**Hiram Leach,** formerly president of Leach Textiles, Ltd., Huntingdon, Que., has purchased the National Textiles, Ltd., 607 College St., West, Toronto, from A. Bradshaw & Son, worsted cloth manufacturers, and has located the mills at 64 Wellington St., West, same city.

**James A. Matheson,** recently with Neisler Mills, has joined the Chicopee Sales Corp., New York, as of Jan. 1.

**F. D. Murdock,** president of Southern Weaving Co., Greenville, S. C., has resigned.

**W. A. L. Sibley,** lately superintendent of Ware Shoals (S.C.) Mfg. Co., has been made general manager, succeeding **C. P. Thompson,** who, however, remains vice-president of the company. **Raymond Swedenburg** has been promoted to the superintendency.

**Carl S. Groves,** for a number of years New York sales representative for Lyons Piece Dye Works, Paterson, N. J., has joined Jeandros Dye & Print Works, Inc., New Bedford, Mass., as general sales manager, with offices in New York.

**E. S. Dunlap** has resigned his position with Waynesboro Knitting Co., Waynesboro, Pa., to accept a similar one with the Belle Knitting Corp., Sayre, Pa.

**John J. Wintrich,** associated for 32 years in a managerial capacity with United Piece Dye Works, Lodi, N. J., has resigned.

**Dr. Irving J. Saxl** has resigned as director of research and development of the Waypoyset Mfg. Co., Central Falls, R. I., and is planning the establishment of a textile testing laboratory.

**F. C. Zillman** has become advertising manager of Phoenix Hosiery Co., Milwaukee, Wis., succeeding **Guy Koch.**

**J. Russell McVoy** has joined Allen-A Co., Kenosha, Wis., in an executive capacity.

*Joseph P. Holt vice - president of Aberfoyle Mfg. Co., Chester, Pa., who has taken over the duties of treasurer following the retirement of Charles L. Gilliland after many years in that office as described on page 109.*

**Herbert Rountree** has retired as St. Louis representative for Cone Export & Commission Co. after more than 30 years of service.

**J. F. Morris,** superintendent of Pinehurst Silk Mills, Inc., Hemp, N. C., has resigned.

**D. C. Carpenter,** formerly with the company at the Paw Creek, N. C., plant, has been appointed manager of Oakland Cotton Mills, Newberry, S. C., a subsidiary of Kendall Co.

**Herbert Cathart** has joined the fancy gray-goods department of Deering, Milliken & Co., New York.

**J. C. Platt,** for the last several years agent and superintendent of Aragon (Ga.) Mills, has been made agent of Chicopee Mfg. Corp. of Georgia, Gainesville, succeeding **Marion T. Grimes,** resigned. Mr. Platt is a graduate of the Georgia School of Technology textile school. **Harry H. Purvis** continues as superintendent, and **J. C. Edwards, Jr.,** has been made master mechanic.

**C. A. Townes,** formerly cashier of Aragon (Ga.) Mills, has been appointed assistant treasurer.

**Julian M. Longley,** formerly assistant superintendent of Dixie Cotton Mills, LaGrange, Ga., is now assistant superintendent of Langdale (Ala.) Mill division of West Point (Ga.) Mfg. Co., succeeding **A. C. Boyd** who recently became sales representative for Clinton Co.

**J. T. Huneycutt** has become superintendent of the cotton mill and merceriz-

## *Textile Calendar*

**Wool Trade Banquet, Hotel Statler, Boston, Mass., Feb. 6, 1936.**

**Committee D-13, American Society for Testing Materials, spring meeting, Washington, D. C., March 11, 12 and 13, 1936.**

**Thirty-second Annual Knitting Arts Exhibition, Commercial Museum, Philadelphia, April 20 to 24, 1936.**

**National Cotton Week, June 1 to 6, 1936.**

ing plant of Sellers Mfg. Co., Saxahapaw, N. C., succeeding **S. B. Laws,** resigned.

**Albert I. Alexander,** formerly overseer of French drawing and spinning, has been made superintendent of the washing and combing departments of Pacific Mills, Lawrence, Mass., succeeding **Isaiah D. Merjerison** who retired.

**W. T. Storey** has resigned as superintendent of Calhoun (S. C.) Mills, to become superintendent of Gossett Mills, Williamston, S. C.

**Robert R. Hood,** formerly overseer of weaving at Brandon Corp., Greenville, S. C., but more recently cost expert at Tucapau (S. C.) Mills, is now office manager of Pelzer (S. C.) Mfg. Co.

**William Sirota,** of Westminster, Ltd., New York, has been appointed assistant to the president of the Interwoven Stocking Co., New Brunswick, N. J., and assumed his new duties Jan. 2, according to announcement by John Wycoff Mettler, president of Interwoven.

**Fred R. Kingman,** sales manager of H. C. Aberle Co., Philadelphia, has resigned.

**Tom Oliver,** overseer of weaving, is now superintendent of Wetumpka, Ala., unit of Alabama Mills.

**Clyde Cronic,** overseer of weaving at Oakleaf plant of Callaway Mills, La Grange, Ga., has been transferred to the Manchester plant where he holds a similar position, succeeding **Walter S. Whisnant. Jesse Maddox** succeeded Mr. Cronic. **Clarence Smith,** overseer of spinning at Unity plant has been transferred to Manchester, succeeding **J. F. Wharton,** resigned. **Lee Thompson** has been transferred from the central machine shop of Callaway Mills to the Manchester plant as master mechanic, succeeding the late **Andrew C. Grant.**

**Olin McManus,** formerly associated with the Ozark Mill, Gastonia, N. C., has accepted an executive position with the Highland Cotton Mills, High Point, N. C.

**A. C. Stringer** is now supervisor of properties of the Chicopee Mfg. Co., Gainesville, Ga. He assumed his new duties Dec. 1.

**R. H. Williams,** formerly a departmental overseer at the Cabarrus Mill, Kannapolis, N. C., has gone to Meridian, Miss., where he has accepted the superintendency of a cotton mill.

**J. I. Laurens** has resigned as overseer of weaving at the Bath, S. C., plant of the Aiken Mills, Inc., and is now overseer of weaving at the Beaumont Mfg. Co., Spartanburg, S. C.

**J. R. Federline, Jr.,** has resigned his position with the West Point (Ga.) Mfg. Co., and is now overseer of spinning at the Beaumont Mfg. Co., Spartanburg, S. C.

**W. A. Hunt,** formerly assistant superintendent of the Meritas Mills, Columbus, Ga., was recently advanced to the post of superintendent. He will be succeeded as assistant superintendent by **Walter Hudson.**

**C. K. Dobbs** has been appointed overseer of the weaving department of the No. 1 unit of the Chadwick-Hoskins Mills, Charlotte, N. C., having been promoted to this position from that of assistant.

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# *Obituary*

**Charles Walcott,** aged 65, president of Appleton Co., Anderson, S. C., treasurer of Newmarket Mfg. Co., Lowell, Mass., and chairman of National Rayon Weavers' Association, died in Boston on Dec. 11.

**A. W. Butterworth,** aged 67, for the last eight years president of H. W. Butterworth & Sons Co., Philadelphia, makers of textile finishing machinery, died Dec. 18 at his home in Langhorne, Pa. He had been identified with his company for 50 years, succeeding his brother, Harry W. Butterworth as president in 1928 when the latter became chairman of the board. He is survived by his brothers Harry W. and J. Warner Butterworth and by his son, J. Ebert Butterworth, vice-president and treasurer of the company.

**David S. Wolfe,** aged 73, Shoemakersville, Pa., prominent knit goods manufacturer, died recently. He was proprietor and manager of the Globe Underwear Co., and the Globe Dye & Bleach Co.; president and treasurer of the Globe Knitting Mills, and a director of the Deysher Knitting Mills.

**Arthur G. Meyer,** who retired 10 years ago from a successful career in the wool goods business, died in Washington, Dec. 29. He began business when 16 years old with Frederick, Vietor & Achelis and later headed their woolen and worsted department. As A. G. Meyer & Co. he became well known as an importer and later as owner of the Merrimac Woolen Mills, Lowell, Mass.

**Robert L. Innes,** president of Zimmerknit, Ltd., Hamilton., Ont., one of Canada's leading textile executives, died recently. He had been with the Zimmerknit firm since 1887.

**Charles H. Murray,** secretary of the Highland Mills, Griffin, Ga., dropped dead recently while playing golf.

**Amos Victor Bumgardner,** aged 54, superintendent of spinning at the Linford Mills, Belmont, N. C., is dead.

**Charles R. Sanford,** aged 52, formerly superintendent of the Waverly and Dickson Cotton Mills, died at Raleigh, N. C., recently.

**George Barton,** aged 73, since 1905 superintendent of the piece-goods dyeing and finishing departments of Hampton Co., Easthampton, Mass., died on Dec. 17. A native of England, he bleached and finished goods in Lancashire that won first prize at the World's Columbian Exposition, Chicago, in 1893.

**Uriel B. Herwitz,** aged 51, secretary of Trojan Hosiery Co., Indianapolis, Ind., died on Nov. 29.

**Herman Friedman,** aged 80, president of Friedman-Blau-Farber Co., Cleveland, Ohio, died on Dec. 11.

**Albert Anderson,** aged 58, founder of Merrill (Wis.) Woolen Mills and president until his retirement last year, died on Dec. 13.

**Herbert B. Sprague,** aged 45, former treasurer and general manager of Roxbury Carpet Co., Saxonville, Mass., died in Weston, Mass., on Dec. 18.

**Miles Pegram Hoffman,** aged 64, retired cotton-yarn broker, died at his home in Mount Holly, N. C., on Dec. 2.

**Richard L. P. Reifsneider,** aged 82, who covered the knit-goods and hosiery trade in Philadelphia for Fairchild Publications until a few months ago, died on Dec. 20.

**William N. McLane,** aged 68, former treasurer of Seaconnet Mills, Fall River, and lately with Pope & Early, N. Y., died at Scarsdale, N. Y., on Dec. 7.

**William Batchelder,** aged 68, a director of Goodall Worsted Co., Sanford, Me., died on Dec. 10.

**Jude C. Wadleigh,** aged 75, agent of Merrimack Mfg. Co., Lowell, Mass., for the last 31 years, died on Dec. 5.

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## *Edgerton Again Heads Southern Industrial Council*

John E. Edgerton was reelected president of the Southern States Industrial Council at the third annual meeting held last month at Birmingham, Ala. Other officers named included Fitzgerald Hall, president of the N. C. S. L. Railroad, John A. Miller, executive vice-president of Exposition Cotton Mills, Atlanta, Ga., vice-presidents, Charles C. Gilbert, secretary, and S. L. Durham, treasurer. Paul A. Redmond, president of Alabama Mills, Inc., Birmingham, acted as chairman of arrangements for the meeting. One of the resolutions asked the Interstate Commerce Commission to make an exhaustive investigation of freight-rate structures in the South in order to eliminate injustices.

## *Canada at Peak*

Employment in the primary textiles industries in Canada reached an all-time peak Oct. 1, 1935. The combined index figures for wool, cotton, silk, rayon and knitting industries (not including the needle trades or clothing industries) were 128.9, representing employment of 63,572 workers.

## *Danville, Va., Approves Textile School Plan*

The Danville (Va.) city school board has approved a plan for a textile school, which was first proposed by the Riverside & Dan River Cotton Mills through R. R. West, president. The mills would provide one section of the mills and supply the necessary machinery. The Federal and State governments would pay the instructional costs the first year and the city would provide the raw materials and certain tools and textbooks.

## *Smith Discusses Waste Fiber Elimination*

Elimination of waste fibers was discussed by William Smith, retired principal of New Bedford Textile School at the December meeting of the Textile Associates Club held at the Narragansett Hotel, Saylesville, R. I., Dec. 14. Mr. Smith stressed the need for proper settings of pickers, cards and combers; the talk was illustrated with charts.

## *"American Fashion Designers"*

The history of American fashion design, together with brief biographies of leading American designers are offered in a volume, entitled "American Fashion Designers" just compiled by Grace D. Ely of the University of Pittsburgh and issued by the National Retail Dry Goods Association.

## *Mrs. Ovitte Heads Fashion Group*

The unanimous election as president of the Fashion Group of Mrs. Winifred Ovitte, fashion editor of *Women's Wear,* and as treasurer of Miss Ruth Kerr, style analyst of the Calf Tanners Association, was announced last month, following the Fashion Group's annual meeting in New York.

## *British Fair Includes Spun Rayon Fabrics*

Lightweight suitings, high-styled cotton upholstery fabrics and interesting new developments in spun rayon constructions are among the features of the British Textiles Exhibition which opens in London Feb. 17 to 28 as part of the British Industries Fair. It is stated that a considerable variety of spun rayon fabrics having a "dull silky appearance" will be shown.

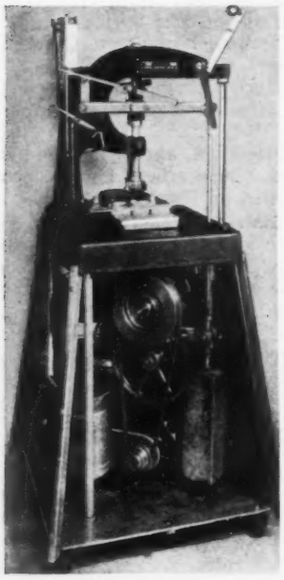
## *Air Travel Fashions*

Air travel styles for women designed by Gwen Wakeling, 20th Century-Fox designer, will be a feature of the Spring Market Week previews which open at Los Angeles Jan. 27. Other textiles shown at the exhibit will be men's wear, notions, draperies, curtains, floor coverings.

## *Where the Taxes Go!*

More than 20% of federal receipts from all sources go to meet the servicing of the public debt which is now 50 billion, according to figures just issued by the National Industries Conference Board. The servicing charge totals about $2.8 billion annually.

# NEW MACHINERY



## *Fabric-Wear Testing Machine*

Shawmut Engineering Co., 195 Freeport St., Boston, has developed a fabric-wear testing machine which is designed to eliminate the human element and to provide a wearing shoe that is not affected by wear. A feature is that the entire testing operation is carried out automatically and continuously, and the results are recorded on a chart.

The circular shoe and the platen are constructed of polished, chrome-vanadium steel, and no abrasive whatever is used. The shoe—which oscillates continuously — automatically stamps down on the fabric, slides along its surface, is lifted, and repeats the operation. Means are provided to secure a wearing operation on the fabric in all directions, and a uniform tension is automatically maintained on the 7-in.-square sample. Every 20 min. the extent of the wear is automatically measured without stopping the machine, and the results are recorded on a chart which is ruled vertically in thousandths of an inch and horizontally in minutes. When the fabric is worn to the extent that has been determined as being worn out, the machine stops automatically. A vacuum cleaner with a positive-suction pump removes grit and lint continuously. As there are no adjustments of any kind on the machine, there is no human element involved.

At present the testing unit is primarily designed for testing carpets, but changes can be made to handle light fabrics.

## *pH Meter*

Development of the Beckman pH meter, for hydrogen-ion determinations, has been announced by Fisher Scientific Co., 717 Forbes St., Pittsburgh, Pa. A glass electrode with a comparatively heavy membrane is used and can be handled much like an ordinary piece of glass without breaking. No delicate galvanometer is necessary for measuring the current.

In taking readings with the meter, only two operating controls are used. One adjusts the amplifier circuit for any change in battery voltage, tube characteristics, etc.; the other regulates the current in the potentiometer slide wire during the standardization. A built-in temperature compensator obviates the need for temperature-correction charts. The electrical equipment of the instrument is stated to be accurate within 0.01 pH.

## *Drinking-Water Cooler*

Clogged-condenser troubles, due to the lint encountered in textile mills, are said to be entirely eliminated by the use of a water-cooled condenser, motor, and compressor in the Model FWP-8 and the Model FWP-14 water coolers developed by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. An improved type of cooling is employed, whereby the incoming water lines are wrapped around the outside of the evaporator shell, the purpose being to take advantage of the cold produced on the outside of the evaporator shell to pre-cool the incoming water. The water then goes into the evaporator itself for the final cooling. Elimination of pre-cooling by means of waste water from the bubbler permits the use of a large, ¾-in. drain straight

from the drain at the top of the cooler to the drain line, materially reducing the chances of clogging.

Model FWP-8 uses a ⅓-hp., hermetically sealed unit, and it is possible to get 25 gal. per hour with inlet water of 60°F. Model FWP-14 uses a ½-hp. unit and supplies 42 gal. per hour with inlet water of 60°F.

All Streamline Coolers are housed in a sheet-steel cabinet and have a recessed sub-base to prevent scarring of the panel. The top is of one-piece stainless steel, and the bubbler and valve are chromium-plated brass. An outlet is provided at the top for a glass filler.

## *Water-Spray Gun*

For spraying water on fabrics which are to be pressed, Binks Mfg. Co., 3114 Carroll Ave., Chicago, has developed the Thor-Tex spray gun. Both air and water can be controlled, the width of the spray can be adjusted, provision has been made to keep the water at an even pressure, and the gun has been designed to prevent water dripping after the trigger has been shut off. The water line attaches to the city supply, and the size of the air compressor depends upon the number of guns used.

## *High-Speed Fingering Machine*

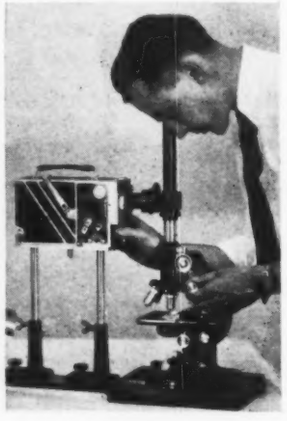
In the item which appeared in our December issue, describing the new fingering machine developed by Lamb Knitting Machine Co., Chicopee Falls, Mass., it was stated that a speed of 22 r.p.m. is possible. In reality the speed is 220 r.p.m.

## *Photo-Electric Reflection Meter*

A reflection meter, designed for the objective determination of whiteness, has been placed on the market by Pfaltz & Bauer, Inc., 300 Pearl St., New York. The instrument consists of a self-generating photo-electric cell, a micro-ammeter, small storage battery, volt-meter, and two rheostats for the control of the light source and the resistance of the micro-ammeter. The apparatus is portable and the photo-electric cell is a separate unit with an extension cord. A feature is the design of the cell, which has a central opening through which the rays from the light source are directed to the surface to be measured. This arrangement is designed to place the light source in a fixed relation to the sensitive surface of the cell and to the specimen.

## *Microscopic Movies*

Through the cooperation of Bausch & Lomb Optical Co. and Eastman Kodak Co., both of Rochester, N. Y., a new apparatus for making microscopic movies has been designed which makes use of the regular Cine-Kodak Special. An eyepiece, developed by Bausch & Lomb, is fitted to the front of the camera in place of the regular camera lens and acts as a beam splitter. In the beam splitter is a 45° prism, silvered but unbacked, which causes part of the light to be reflected to the film and part to be transmitted through the eyepiece so that the operator can observe the action and the field while the picture is being made.



## *Fabric-Shrinkage Tester*

Apparatus for testing the susceptibility to shrinking of fabrics upon dry cleaning has been placed on the market recently by Albert Weiss, 151 West 21st St., New York. The device consists of a small 3-gal. barrel tilted to an angle of 50° to the perpendicular and rotated, either by hand or by motor, three and one-half turns in one direction and three and one-half in the opposite direction. It is loaded to a weight of 1 lb., including two test samples measuring 12x12 in. and additional pieces of fabric as ballast. The frame and gear box are made of aluminum, in order to keep the weight at a minimum.

## *Time Recorder*

One-hand operation is featured by Stromberg Electric Co., 223 West Erie St., Chicago, in its No. 15 electric time recorder.

The new recorder is compact, equipped with a Telechron motor, and can be plugged into any electric-light socket. It takes full-size, employees' time cards and prints the record on the front of the card when it is dropped face outward into the funnel.

## *Stainless-Steel Welding Rod*

Oxweld No. 28 columbium-treated, 18-8 welding rod, a stainless-steel rod for welding chrome-nickel steels, has been announced by Linde Air Products Co., 30 East 42d St., New York. The feature of the new product is the inclusion of a definite quantity of the element columbium. It is asserted by the manufacturer that products fabricated from "treated" or "stabilized" 18-8 steel by welding with the new rod have full corrosion and heat resistance in the as-welded condition. No heat-treatment after welding is necessary.

# AND PROCESSES

## *Acoustic Communication Booth*

Built on the principle of absorbing extraneous sounds, rather than blocking them, a new type of telephone booth for noisy locations has been developed by Burgess Battery Co., Madison, Wis. The interior of the booth is faced with Burgess Acoustic Treatment, a perforated metal sheet backed with balsam wool, and extraneous

sounds are absorbed, producing a space of comparative silence within the booth even in noisy locations. No door is used, and the booth is open around the base, permitting ventilation and easy cleaning. It is stated that the speaker's voice is not transmitted beyond the booth.

## *Material for Bobbins*

Bakelite-Rogers Board, a new product suitable for the fabrication of textile spools and bobbins, has been announced by Bakelite-Rogers Co., Inc., an affiliate of Bakelite Corp., 274 Park Ave., New York. The material consists of pulp and fibrous products treated with Bakelite resinoid, may be molded into various shapes, and approaches Bakelite laminated in mechanical strength.

## *Worm-Gear Reducers*

Cut-tooth, worm-gear speed reducers comprise a new line announced by Link-Belt Co., 2045 West Hunting Park Ave., Philadelphia. The reducers, which feature simple, compact construction, are available in a wide range of ratios and capacities, with single or double reduction, and in horizontal and vertical types. All types are provided with precision-tapered roller bearings and automatic lubrication within dust-proof housings. The output shaft can be located above or below the wormshaft. A feature of the double-reduction reducer is the attachment of the primary-reduction unit to the side of the final-reduction housing.

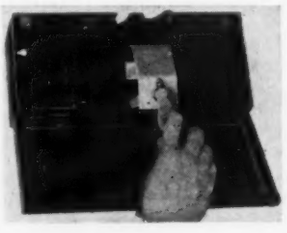
## *Metal-Clad Switchgear*

Type MI-9 metal-clad switchgear has been extended to light-duty service for industrial applications, according to an announcement of General Electric Co., Schenectady, N. Y. Ease of installation, economy, safety to attendants, and reliability are featured.

Each metal-clad unit has a stationary and a removable element. It includes an oil-blast circuit breaker, instrument transformers, disconnecting devices, supporting structure, interlocking equipment, self-contained elevating mechanism with a removable lever, bus, and interconnections. The FK-42 oil-blast circuit breaker, with its operating mechanism, forms the removable element, which can be lowered by means of the elevating mechanism and then withdrawn from its housing.

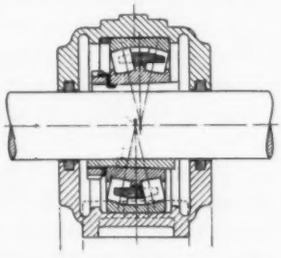
## *Circuit Breaker*

The swing-out-interior feature has been applied to the 15 to 50 amp. circuit breakers made by Square D Co., Detroit, Mich. The breaker unit is mounted on a metal pan which is hinged to the box. When the interior is in place, it has the appearance of the conventional breaker, but, by swinging it out and away from the box, the entire box area may be used for bringing in conduit and wires without obstruction.



## *Pillow Block*

Type SA pillow block, to be used in conjunction with the company's spherical roller bearing for heavy-duty service, is a new addition to the line of SKF Industries, Inc., Front St. & Erie



Ave., Philadelphia. The pillow block has a split construction, and the unit is held to have the inherent ability of rolling self-alignment without imposing extraneous loads due to set-up inaccuracies or shaft deflections. It is designed with cross and transverse ribbing to give strength without weight.

## *Conduit-Grounding Items*

One box for fixture mounting and three grounding fittings, which can be quickly installed and insure secure connections, have been announced by General Electric Co., Merchandising Dpt., Bridgeport, Conn. The fixture box, designated as Type SP-5200B, provides a simple method of grounding and makes possible firm mechanical and electrical connection between box and armor. Two of the fittings, Type SP-825 and Type SP-836, intended for ½- and ¾-in. conduit respectively, are equipped with a reversible shackle which fits three sizes of water pipe; a U-bolt with a wide, flat strap is used to make the connection. Type SP-828 fitting has a connection which firmly grips and holds the armored cable.

## Business Literature

**Air - Operated Controllers.** Brown Instrument Co., Philadelphia. Catalog No. 8,900 describing air-operated controllers for temperature, pressure, flow, and liquid level. "Tuning in" the throttling range, automatic reset, and interchangeability of control units are fully explained.

**Packaging.** Hinde & Dauch Paper Co., Sandusky, Ohio. Booklet, *How to Pack It*, describing methods of packaging goods for various industries. One section is devoted to engineered packages for the textile, dry goods, and apparel industries. Other sections are entitled "Package Engineering" and "How to Pack It."

**Carding.** Davis & Furber Machine Co., North Andover, Mass. October issue of *Davis & Furber News* containing card-room suggestions.

**Pumps.** Lawrence Machine & Pump Corp., 371 Market St., Lawrence, Mass. Bulletin 206 covering line of sludge and sewage pumps, and illustrating construction of both horizontal and vertical drives.

**Synchronous Motors.** General Electric Co., Schenectady, N. Y. Bulletin describing "7500 Series" of high-speed synchronous motors.

**Control Instruments.** Foxboro Co., Foxboro, Mass. Bulletin 199 devoted to controlling, recording, and indicating instruments; folders describing the Stabilog for pipe stills, the ball-float-level Stabilog, pyrometer records in color and number, potentiometer-control pyrometer, two-pivot indicators, pyrometer switches, and a portable recorder.

**Air Conditioning.** Parks-Cramer Co., Fitchburg, Mass. November issue of *Parks' Parables*, containing article explaining how the Parks Automatic Airchanger operates under different weather conditions.

**Microscopes.** Bausch & Lomb Optical Co., Rochester, N. Y. Booklet describing Type H line of laboratory microscopes.

**Bearings.** SKF Industries, Inc., Front St. & Erie Ave., Philadelphia. Bulletin explaining how plain bearings on fans and blowers may be replaced with SKF bearings. Types of fans, shaft diameters, and other specifications for 86 change-over jobs are included.

**Factor's Almanac, 1936.** James Talcott, Inc., New York. Annual appearance of fascinating booklet, giving wealth of historical detail and containing illustrations which bring back memories of ye olden time.

**Speed Reducers.** Link Belt Co., 910 South Michigan Ave., Chicago. Illustrated 32-page catalog, No. 1519, devoted to line of single-, double-, and triple-reduction herringbone gear reducers, emphasizing the RC double-reduction model. Attention is called to the re-rating of the entire line according to recommended practices of the American Gear Manufacturers Association.

**Sizes, Oils.** E. F. Houghton & Co., 240 West Somerset St., Philadelphia. December-January issue of *The Houghton Line* carrying articles on size formulas for warp yarn, lubrication and maintenance of driving chains, belting, etc.

**Bearings.** Hyatt Roller Bearing Co., Newark, N. J. Fall issue of **Hyatt Rollergravure** "saluting the textile industry" by illustrating applications of Hyatt bearings in various types of textile machines.

**Knitting.** Union Special Machine Co., 400 North Franklin St., Chicago. December issue of *Needle's Eye* carrying reprint of article, "Suggestions for Making Finer Stockings," presented to operators of Class 41200 hosiery seamers by W. M. Grosse, Greensboro (N. C.) Full-Fashioned Hosiery Mills, Inc. First printed in employees' house organ, *The Full-Fashioned*.

**Friction Materials.** Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J. New catalog describing complete line of Condor industrial friction materials, and containing much technical descriptive data, installation charts, and list prices.

**Nickel-plated Steel.** Lukens Steel Co., Coatesville, Pa. Illustrated 24-page publication describing the advantages and applications of Lukens Nickel-clad steel.

**Welding Chromium Steels.** Linde Air Products Co., 30 East 42d St., New York. December issue of *Oxy-Acetylene Tips* carrying detailed article on the welding and cutting of high chromium steels, from a paper read before the 36th annual convention of the International Acetylene Association by W. J. Priestley, vice-president of Electro Metallurgical Co. The technique of handling 18-8 columbium-bearing welding rods is discussed.

**Industrial Prospectus.** Crisp County Chamber of Commerce. Illustrated 25-page booklet on Cordele, Ga., covering subjects of interest to manufacturers contemplating building or moving plants. The booklet touches on local government, power rates, living costs, labor laws, water supply and analysis, civic developments, wage scales, special inducements, etc.

**Lubrication.** Esso Marketers, 26 Broadway, New York. November issue of *Oil-Ways*, containing article on modern cotton mill equipment and lubrication.

**Warp Sizing.** Charles B. Johnson, Paterson, N. J. December issue of *Rayon Warp Sizing Specialist* stressing need for humidity control and danger of overstretching yarn in sizing.

**Conveyors.** Standard Conveyor Co., North St. Paul, Minn. Three new catalogs: "Conveyors By Standard" containing 40 pages of general descriptive information; "Standard Gravity Roller Conveyors" containing 56 pages of detailed drawings and descriptions of rollers, bearings, supports and frames—of special interest to plant engineers; "Standard Pneumatic Tube Systems."

TEXTILE WORLD'S

# *Cotton Digest*

PEOPLE outside the cotton textile industry seem to be more impressed with the performance of that group in continuing code standards, than do cotton manufacturers themselves. From a wide variety of sources, we get indications of surprise that the whole structure of conformance did not collapse immediately after the Supreme Court's decision last May—and of admiration that such an overwhelming majority continues to adhere to the basic labor provisions.

Further approval was voiced last month when it was announced that the Cotton-Textile Institute intended to ask the mills to pledge continued observance. Affirmative reaction to this request will raise the industry still another notch in public esteem.—*Editor.*

## *AAA Goes Out the Window*

In a decision read on Jan. 6 by Justice Owen Roberts, the Supreme Court threw out the AAA farm recovery program by holding that the act is an unconstitutional attempt to control production. The sweeping opinion, it is believed, will make it very difficult to re-enact any similar measure without a constitutional amendment. The Court held that control of crop production, even by voluntary agreements and the payment of bounties, exceeds the limitations placed by the Constitution on the power of the Federal Government.

The decision was so forceful that it leaves practically no doubt that the Bankhead cotton control act likewise will be declared invalid.

The decision eliminates the processing taxes on cotton and on other similarly taxed products. The cotton control programs fall with the decision.

Justice Roberts related the law directly to the right of the government to levy taxes for the general welfare. The Court based its decision on the finding that the AAA is an invasion of the right of the State; it also held that the plan "is in itself not voluntary." Roberts said that the Bankhead Act is merely a step further along the same route as AAA, compulsory as is AAA and striking at the very heart of the law. The Supreme Court's decision was 6 to 3.

Initial effect of the decision on the goods market was paralyzing but constructive steps were soon under way to gain a workable basis for transactions.

•

## *North and South Affected By I.C.C. Decision*

An improved position in the markets of the western States will accrue to the New England cotton textile industry as the result of a recent decision of the Interstate Commerce Commission, according to Russell T. Fisher, secretary of the National Association of Cotton Manufacturers.

"It was the contention of the National Association of Cotton Manufacturers that, because of the more onerous transportation conditions within the South, the rates from New England to the West should be on a lower basis, mile for mile, than the rates from the South," declared Mr. Fisher. "The findings of the Commission have upheld this contention. A typical effect of the decision is shown in the cotton piece goods group is as follows.

"To Chicago: present rate from Boston group on cotton piece goods, 86c., new rate 97c., present rate from Atlanta, Ga., 83c., new rate 96c., present rate from Greensboro, N. C., 97½c., new rate 92c.

"To St. Louis, Mo.: present rate from Boston group $1.00½, new rate $1.10; present rate from Atlanta 75c., new rate 88c.; present rate from Greensboro 90c., new rate 95c.

"To Cleveland, Ohio: present rate from Boston group 85c., new rate 77c.; present rate from Atlanta 83c., new rate 95c.; present rate from Greensboro 92c., new rate 78c.

Interviewed by telephone, Carl R. Cunningham, traffic manager of the American Cotton Manufacturers Association, Atlanta, Ga., gave a statement to TEXTILE WORLD which follows in part:

"This decision is of more than usual public interest due to the universal consumption of textile products and because of the fact that the measure of the freight rate or transportation cost will necessarily be reflected in the delivered price of the goods or cost to the consumer. The decision approves an average increase of approximately 10% in the general rate level. Although there are some reductions there are other increases exceeding this amount.

"The southern mills are denied rates as low as those fixed from more distant origins in the East, such as Boston, Mass., or Lewiston, Me., and are also required to pay a higher rate than from the more distant Texas mills to Chicago. This in spite of the absence of any evidence in the record to indicate a less cost of handling textile products to Chicago from New England points, such as those named, or from southwestern points, such as San Antonio, Tex., than from Charlotte, N. C., to Chicago.

"Cotton towels are shipped competitively to Richmond, Va., from Griffin, Ga. (585 miles), and from Fall River, Mass., (565 miles), approximately equal distances. The decision provides for a rate on towels to Richmond of $1.72 from Griffin, and a rate of $1.29 from Fall River. The rate from the South would thus be about 50% higher than from the competitive Northern shipping points of similar distances.

Mr. Cunningham closed his explanation with a statement to the effect that if the penalty charge is made effective the southern section of the country would be ostracized and prevented from selling their goods in other sections of the country except at a serious disadvantage.

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## *U.T.W. Scores in South*

Union labor scored twice last month in its perpetual battle with southern management.

The National Labor Relations Board ruled that Clinton Cotton Mills, Clinton, S. C., would have to reinstate, with back pay, 96 employees allegedly turned away from work last Aug. 26 when the Friendship Association decided to have a closed shop, after signing a contract with the mill as majority group. Further, the Board ordered the mill to cease making membership in the F. A. mandatory, and failed to recognize the association as employees' representative for collective bargaining. W. J. Bailey, president of the mill, when informed of the Board's decision, said, "We do not think the decision is fair, and we propose to appeal from it." Under the law, the mill can appeal the decision to the United States Circuit Court of Appeals, and it is practically certain that the case will be taken to higher courts.

The other blow was dealt at Oakland Mill, Newberry, S. C., when the U.T.W. overwhelmingly won a "consent election" to represent the employees in collective bargaining. Reserving all legal rights, the mill cooperated with NLRB by furnishing its payroll, and by not opposing the secret balloting. U.T.W. received 17 votes above the majority, with 117 employees failing to vote.

No other southern mill to date has consented to an election, although a large number have been ordered to hold such election. One of these was Gate City Cotton Mills, East Point, Ga., involved in an NLRB hearing last month, as described in these columns. When the election at East Point was ordered, Mrs. Lola Echols, an employee of Gate City Cotton Mills, challenged the constitutionality of the Wagner Labor Disputes Act and asked the District Supreme Court to prevent an employee election on the grounds that she "has the right to live her own life and sell her own labor free of molestation." The petition was denied, and the mill filed a suit of its own against NLRB, asking that the Board be enjoined from holding an election.

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## *Amoskeag Seeks Reorganization*

A step toward the reopening of Amoskeag Mfg. Co., Manchester, N. H., closed since last summer, was taken on Dec. 24 when a petition was filed in the U. S. District Court at Boston for permission to reorganize under Section

77-B of the Bankruptcy Act. Hearings will be held on Jan. 20. If the company can continue to operate, Mr. Dumaine intimated that there would be a "shrinkage" process, whereby only the best and most efficient units would be operated. The company lost $668,528 the first six months of 1935.

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## *Combed Spinners Vote*

The Southern Combed Yarn Spinners Association, meeting last month at Gastonia, N. C., unanimously pledged itself to a strict observance of former NRA codes, with respect to wages, hours of labor and child-labor provisions. Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, making the principal address of the occasion, told the spinners that continuance of such a policy is the best insurance possible against radical legislation.

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## *C. L. Gilliland Retires*

Charles L. Gilliland, for many years treasurer of Aberfoyle Mfg. Co., with plants in Pennsylvania, North Carolina, Canada and Australia, announced last month that he planned to retire Dec. 31 and would live in the future on his ranch near Phoenix, Ariz. This move is attributed to ill health. Joseph P. Holt, vice-president of the company, has taken over the duties of treasurer.

During his quarter-century of unusual activity in the industry, Mr. Gilliland is credited with developing mass-production methods and other forms of management efficiency to the point where mercerized yarn was brought into the volume price range.

•

## *Cotton Price Trend*

Key cotton prices of Jan. 2 and a month ago, contrasted with those of the last two years follow:

| | Jan. 2 1936 | Dec. 2 1935 | Jan. 2 1935 | Jan. 2 1934 |
|---|---|---|---|---|
| Spot Cotton, N.Y. | 12.20 | 12.15 | 12.85 | 10.50 |
| Ditto, high previous month | 12.35 | 12.45 | 12.85 | 10.35 |
| Ditto, low previous month | 11.65 | 11.35 | 12.65 | 10.00 |
| 10s frame spun yarn | 29½c | 30c | 28c | 28½c |
| 10s/2 carded skeins | 29c | 30c | 28c | 28½c |
| 20s/2 carded peeler warps | 32c | 30c | 27½c | 29½c |
| 60s/2 combed peeler warps | 59c | 60c | 57c | 61c |
| 60s/2 mercerized cones | 72c | 72c | 70c | 77c |
| 37 in., 3-yd. drill | 9½–10c | 9½–9⅝c | 9½c | 9½c |
| 38½-in. 64x60s | 6½c | 6½c | 6½c | 6½c |
| 36-in. 4-yd. 56x60s | 8½c | 8½c | 7½c | 7½c |
| Denim, 2.20s | 15½c | 15½c | 15c | 15½c |

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## *November Statistics*

Statistics of particular interest to cotton manufacturers, showing November operations and the raw material situation:

Spindle activity .....101.1% capacity or 6,897,420,223 spindle hours
Cotton exported .....1,134,874 bales
Cotton imported ..... 7,403 bales
Cotton consumed ..... 507,836 bales
Cotton ginned to Dec. 1....9,362,343 bales

October operations for comparison:

Spindle activity .....103.8% capacity, or 7,445,185,686 spindle hours
Cotton exported ..... 711,664 bales
Cotton imported ..... 7,965 bales
Cotton ginned to Nov. 1....7,749,635 bales

## COTTON IN THIS ISSUE


| | page |
|---|---|
| King Cotton Can Be Cured; a Banker Says So..... | 62 |
| "Worth Street Rules" Coordinate Trade Practices... | 65 |
| What Is Cotton? Research at Boyce Thompson Inst. | 74 |
| Ways to Reduce Unnecessary Waste in Cotton Mills. | 75 |
| Fancy Effects by Rearranging Simple Weaves..... | 76 |
| Charts Control Size of Cotton Sliver and Roving... | 84 |
| Constructions, Finishes, Uses of Staple Cotton Goods. | 89 |
| Cotton String Knitting Vogue Profitable to Spinners.. | 92 |
| Drying and Sizing Cotton-Rayon Necktie Fabrics... | 97 |
| Source of Cotton Waste..... | 102 |
| Winder Speeds ..... | 102 |


## *Cotton Mill News*

**Dwight Mfg. Co.,** Alabama City, Ala., has approved plans for new one-story addition, 130x140 ft., to be used in part for new slasher room and for extensions in main mill. Cost over $85,000, including equipment.

**Southern Mills, Inc.,** Atlanta, Ga., plans early rebuilding of portion of mill recently damaged by fire.

**Ludlow** (Mass.) **Mfg. Associates** have closed bids on general contract and will soon make award for new mill on tract of about 53 acres at Edge Moor, Wilmington, Del., recently purchased. Main unit will be two-story, 400x600 ft.

**Androscoggin Mills,** Lewiston, Me., has installed a rayon warper made by Cocker Machine & Foundry Co.

**Otis Co., Three Rivers, Mass.**—A portion of this mill has been leased by a company organized by Boston interests, and will soon be occupied for yarn production. It is expected to give employment to about 50 persons.

**Nottingham Neckwear Works** have leased part of the former New Bedford (Mass.) Spinning Co. plant and has moved 200 wide novelty looms from location in Connecticut. James A. Adams, former agent of Butler Mill, will be in charge.

**E. M. Holt Plaid Mills,** Burlington, N. C., is installing a Cocker rayon warping machine.

**Cannon Mills Co.,** Kannapolis, N. C., has plans for new one-story top addition to its local No. 2 Mill, making a three-story unit.

**Rocky Mount** (N. C.) **Mills** have installed new Foster winding equipment, and new high-speed Cocker warpers.

**Hart Cotton Mills, Inc.,** Tarboro, N. C., will soon take bids on general contract for new one-story addition, 140x200 ft., to be equipped as a weave shed. Company has recently arranged for a merger with the **Fountain Cotton Mills,** Tarboro, and part of equipment of latter company will be installed in new unit at Hart mill. J. E. Sirrine & Co., Greenville, S. C., are engineers.

**Commander Mills, Inc.,** Sand Springs, Okla., plan expansion in plant, including new one-story unit. About 64 looms will be installed.

**Springs Cotton Mills,** Gayle Plant, Chester, S. C., has begun construction of an addition, 125x50 ft. to house a Barber-Colman warper and about 100 looms. This addition will cost about $20,000. Their Mill No. 2, Fort Mill, S. C., is erecting a two-story addition, 373x83 ft., to house looms recently purchased in New England.

**Spartan Mills,** Spartanburg, S. C., plan rebuilding of portion of mill, recently damaged by fire.

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## *Cotton Financial News*

**Dale Cotton Mills,** Ozark, Ala., has been acquired by **Cowikee Mills, Inc.,** Eufaula, Ala. Disposition of the properties has not been announced.

**Chicopee Mfg. Corp. of Ga.,** Gainesville, closed since Oct. 20 as a result of labor troubles, reopened in December. J. C. Platt was made agent, succeeding M. T. Grimes, resigned. Harry H. Purvis continues as superintendent.

**Vale Mills Corp.,** Hudson, Mass., has been organized by officials of Thomas Taylor & Sons, Hudson, with capital of $25,000, to operate a local cotton specialty mill.

**United Merchants & Manufacturers, Inc.,** report net profit for fiscal year ended July 31, 1935, of $772,919 compared with $1,171,530 in preceding year. The company's Argentine subsidiary, Sociedad Anonima Textil Sudamericana, which began construction of its plant a year ago will have the cotton mill and finishing plant in full operation this year.

**Suncook Mills** report net profit of $6,722 for nine months ended Sept. 28, 1935, against net loss of $47,408 for 12 months ended Dec. 29, 1934.

**American Cotton Mills, Inc.,** No. 2, Bessemer City, N. C., a unit of the Goldberg group, was recently sold under foreclosure for $24,000 to American Trust Co. of Charlotte, N. C.

**Pickett Cotton Mills,** High Point, N. C., have secured an RFC loan of $160,000. The plant begins operations about Jan. 10, on both carded and combed yarns.

**Caswell Mills,** Kinston, N. C., idle for some time, started up last month on a court order to resume operations.

**Carolina Cotton & Woolen Mills,** Spray, N. C., closed their High Point, N. C., plant on Jan. 1, due to a change in merchandising policy of Marshall Field & Co., owners of the mills.

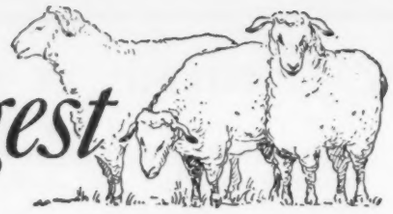
**Carolina Spinning Mills,** Taylorsville, N. C., operated for a number of months under lease by F. C. Sherrill, head of the Gem Yarn Mills, Cornelius, N. C., have been purchased by Mr. Sherrill.

**Marion** (S. C.) **Mfg. Co.** was sold early in December to F. F. Watson, a representative of Watson & Watson of Knoxville, Tenn., for $15,100. The property embraces the mill, 19 acres of land and 36 dwellings for operatives.

**Consolidated Textile Corp.,** Lynchburg, Va., last month filed a voluntary petition in the U. S. District Court to reorganize under Section 77-B of the National Bankruptcy Act. The petition sets forth that the debts amount to $4,634,756 including a first mortgage outstanding of $2,750,000, upon which unpaid interest amounted to $1,172,111 last Sept. 28. The company is seeking an RFC loan of $1,750,000, of which $900,000 would be spent in modernization.

TEXTILE WORLD'S

# *Wool Digest*



STATISTICAL work is not spectacular enough to earn much publicity. Consequently, outstanding jobs of this type are apt to be overlooked.

The statistics compiled by the National Association of Wool Manufacturers are a case in point. From the standpoint of both completeness and form of presentation, these have improved steadily.

We understand that, prior to the code, reports on wool consumption for example were received from about 80% of the industry. During the period of the code—as was true in the many cases where reports were made code requirements—100% cooperation was secured. But here is the real point: These reports are now continuing practically as complete as during code times! We know that is not true in a number of other industries.

Also, the association is making available to its industry and to the press an excellent compilation of data bearing on wool production, prices, consumption, employment and payrolls; cloth production billings and inventory; fabric imports, worsted yarns, etc. Thus, accurate interpretation of the industry's position is encouraged.

Both the wool manufacturers and their association merit praise for this performance.—*Editor.*

## *Promoting the Finish*

More attention is being given to making the consumer conscious of finishes on wool goods. The ground has already been made fertile by promotion of fabrics of other fibers which have been creased-proofed, water-proofed, fireproofed, or what not. Lately the American Woolen Co. has offered a line of outing fabrics "Wind-N-Rain Proofed." A converter has laid plans for promoting an "air-conditioned" fabric for summer suits. And so it goes. Wool goods houses may find this sort of competition on the increase. Many believe it is worth watching.

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## *Trade Quiet, With Good Back-Log*

Wool goods sellers estimate that unfilled orders at the close of December totaled 45,000,000 linear yards of goods. As production is estimated at 3,000,000 linear yards per week, this nest egg would carry the industry for three and a half months without the increment of an order for a single yard.

Recent trade was naturally quieted by the holidays and by the practices of inventory time. There have been buyers in the field for small, filling-in lots, and these have generally been hard to find. Men's wear houses have accomplished a large part of their spring trade and are on the threshold of fall, 1936. Women's wear firms have still much to do for spring and next fall is far away. White coatings have been big sellers for Southern wear and may be expected to be prominent in spring and summer wear.

Profit margins are as various as the positions of mills on raw material supply. The modest advances so far recorded presume ownership of some wool under the current market. The actual course of prices in 1936 will of course depend on the strength of demand. Optimists believe it will be the manufacturers' own fault if they don't do better than break even this year.

•

## *Mackinaws, Up 15%, a Key to New Fall Season*

Price advances of 10 to 15% over last year have been recorded in the openings of mackinaws, and snow and ski cloths for the winter of 1936-7. Price comparisons, however, are possible on only a small part of the offering as most of the lines are new. In general, the price range is from $1.35 to $1.80, with most interest concentrated on fabrics at $1.50 or less.

The fabrics included in this offering have come to be of increasing importance in recent seasons, as the so-called "Snow suit" for children and ski suits for the next age group have been consuming millions of yards and promise well for seasons to come.

Lines of the lower-priced overcoatings which have also been shown are reported up 15% over prices 12 months ago. Reworked wool of suitable grade is scarce, and it is evident that prices must go higher if the demand-supply ratio remains as it is.

These lines are typical of the new fall season in men's wear, which may be formally opened by the close of this month or in February. The trend of the business is so good that there seems no reason for the cautious delay seen in several openings of the last year or two.

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## *Rag Market Strong*

Wool substitutes hold a strong market with mills interested buyers of reworked materials, which will permit cloth manufacture in the lower price brackets. The market is not so satisfactory for the rag sorter, since he has to pay too high figures for his mixed materials. The quality of available rags is said to be low as measured by the yield of the higher priced items—such as white stocks, which are reported particularly scarce. General activity is restrained because of price resistance.

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## *Tops Firm After Sag*

After crossing the $1.00 mark in mid-November, spot tops, as quoted by the Wool Top Exchange, sagged off to 98½c. on Dec. 13, but recovered to $1.00 again on Dec. 27. The decline in early December was attributed to some profit-taking and some hedge selling for foreign accounts. The market at the close was firm through limited offering and a broadening of interest, although the usual holiday atmosphere curtailed the actual volume of sales. On Jan. 3, price was up to $1.02½.

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## *Raw Wool Prices Solid*

The wool market experienced the usual holiday lull, with territory wools moving more freely than fleeces. Prices were very firm and predictions were general that an advance would take place the early part of 1936. Wool dealers have reason to look upon 1935 with satisfaction. Prices rose steadily from April to the end of the year, fine and fine medium Montana gaining 16c. per lb., and the volume was the largest that has been handled in more than a decade.

•

## *Retail Carpet Promotion Set for April 13 to May 2*

A Spring Style Exposition of American-made wool-pile floor coverings to be held April 13 to May 2, in which retailers throughout the country will be invited to participate, was announced at a meeting of the Institute of Carpet Manufacturers of America.

Quality, high-style floor coverings are to be stressed in this nation-wide showing, and to this end a series of attention-getting display cards, suggestions for simple, inexpensive departmental displays, and educational literature for sales training are being prepared for retailers.

Members of the Institute will cooperate by presenting plans of the exposition to retail buyers at the January carpet

openings, both in New York and Chicago. At that time display cards, booklets and sales suggestions bulletins will be shown in the various exhibits. Manufacturers will take requests for this material. The Floor Clothing Wardrobe Service, which is to be offered by the Institute to retailers, will also be ready for clients beginning with the January openings.

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## *Activity of Industry*

Current statistics on wool consumption and mill activity follow, the activity percentage being based on single 40-hour shift, 5 days per week. The figures are based on four-week periods.

| | October | November |
|---|---|---|
| Wool consumed, clean equiv. | | |
| Apparel wool | 29,564,000 | 27,528,000 |
| Carpet wool | 8,129,000 | 7,368,000 |
| Looms (50" wider) | 105.8% | 111.6% |
| Carpet looms | 68.0% | 66.5% |
| Combs | 153.6% | 155.5% |
| Worsted spindles | 100.7% | 103.8% |
| Woolen spindles | 135.9% | 133.8% |

•

## *Wool Price Trend*

Key wool prices of Jan. 2 and a month ago, contrasted with those of the last two years follow:

| | Jan. 2 1936 | Dec. 2 1935 | Jan. 2 1935 | Jan. 2 1934 |
|---|---|---|---|---|
| Fine and fine med. territory | $0.78 | $0.76 | $0.72 | $0.82 |
| Ohio 3/8s | .38½ | .38½ | .28½ | .42½ |
| Tops, fine, 64-66s | 1.04 | 1.04 | .91 | 1.16½ |
| Average 3/8s | .91 | .91 | .76½ | 1.06½ |
| High 1/4 | .84 | .84 | .69 | .97 |
| Noils, fine | .66½ | .66½ | .52 | .57 |
| 1/4 | .51 | .51 | .40 | .49 |
| 2 40s 60s wstd yarn | 1.49 | 1.49 | 1.36 | 1.66 |
| 8020 serge | 1.90 | 1.90 | 1.77½ | 2.02½ |

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## *Wool Industry Briefs*

**Credit**—The interesting group of wool items which formed an important part of the photographic insert, "New Rôles for Old Fibers" in our December number, were presented through the courtesy and cooperation of Associated Wool Industries.

**Philadelphia Party**—The Philadelphia Wool and Textile Association met at the Penn Athletic Club early in December for a dinner-dance-cabaret. Over 400 attended. Herbert Webb was chairman of the entertainment committee.

**Boston Wool Trade Association** will hold its annual banquet at the Hotel Statler, Boston, on Feb. 6.

**Lanistal,** a synthetic wool turned out by Snia Viscosa in Italy, has been well received in that country. Production will be stepped up to 25,000 kilos daily by the second half of 1936, it is reported.

**Woolen and Worsted Yarn Credit Group** re-elected J. J. Alyward, of Meinhard, Greeff & Co., president, and Al North, of Commercial Factors Corp., treasurer, at its recent meeting.

**Carpet men** are looking to the spring openings this month with optimism, for even though home consumption demand may drop below the excellent fall season just experienced, there should be a balancing increase in demand from industrial firms and for public buildings.

**C. J. Fawcett,** previously sales manager of the National Wool Marketing Corp., has been elected general manager. Charles Redd was reelected president.

**Jawine Co.,** importer of French Angora rabbit yarns, has leased larger quarters at 230 5th Ave., New York. They will move from present location, 11 West 30th St., about Feb. 1.

•

## *Wool Mill News*

**Millbrook Woolen Mills,** Yantic, Conn., has been purchased by William T. Lockett and associates.

**Manchaug** (Mass.) **Mills, Inc.,** recently organized as an interest of the **Schuster Woolen Co.,** East Douglas, Mass., will operate a local mill for carbonizing, picking and garnetting of wool stocks. Raymond Schuster will be superintendent at the plant.

**Cavedon Spinning Co.,** Worcester, Mass., has been chartered with capital of $50,000, to operate a local yarn mill in building at Albany and Nebraska Sts. New company is headed by Alexander Cavedon, Woonsocket, R. I., president and treasurer, and Raymond R. Cavedon, vice-president.

**Killingly Worsted Co.,** Stoney Point, N. C., has completed the construction of a weave shed, and will install 124 Crompton & Knowles narrow automatic looms.

**Narragansett Woolen Mill,** Wakefield, R. I., recently organized by Aaron Goldfine and associates, has purchased the local mill of the **Wakefield Textile Co., Inc.** Improvements will be made, including installation of new equipment in different departments. Albert Brend, heretofore general manager of Wakefield company, will be plant manager.

**Hardwick Woolen Mills,** Cleveland, Tenn., has installed 300 seats of American Safety Table Co.

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## *Wool Financial News*

**Eastern Textile Weaving Co., Inc.,** New Haven, Conn., has incorporated with a capital of $10,000. Charles F. Schwartz heads the company.

**Goodall Worsted Co.,** Sanford, Me., proposes to create a $2,500,000 bond issue of which only $1,000,000 will be sold at present. Bonds will bear 4½% from Jan. 1, 1936, and mature in 10 years. Proceeds will be used for expansion and conversion of certain short-term debts into long-term obligations. The company made net profit for 10 months ended July 31, 1935, of $441,414, compared with $302,554 earned in the 12 months ended Sept. 30, 1934.

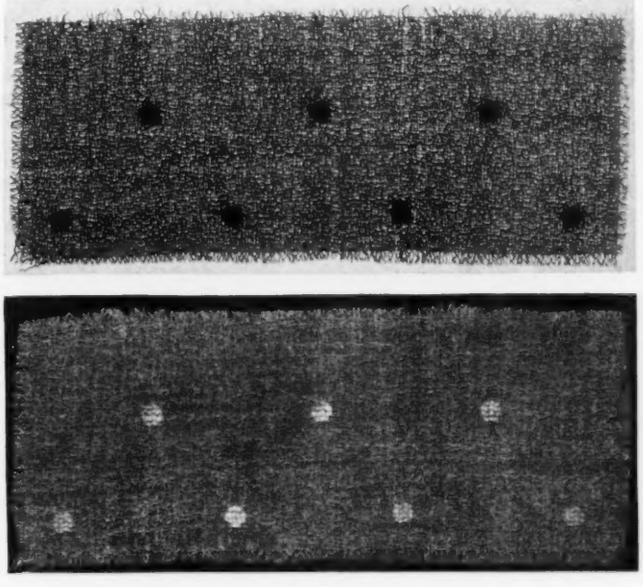
**Ballard Woolen Mills,** Malone, N. Y., may be reopened under a plan advanced by the company asking residents to subscribe to a $50,000 bond issue.

**Mohegan Mills, Inc.,** Warrensburg, N. Y., have been organized to operate a local woolen mill. Incorporators include A. G. and Eugene Karr, and B. M. Hutchins, all of Warrensburg.

**Collins & Aikman** report net income for the nine months ended Nov. 30, 1935, of $3,020,683, which compares with a net loss of $254,780 in the nine months ended Dec. 1, 1934.

**H. London & Co.,** Sumpter, S. C., have been incorporated to operate a textile mill. The partners are H. London and C. H. London, who have operated a mill at Sumpter for many years.

**B. C. Worsted Mills,** Victoria, B. C., equipment will be offered for sale by the Victoria City Council. The building has been leased to motion picture interests. The machinery is being removed.



*HOW IS THIS DONE?*

*The French have a tricky way of weaving shiny little sequins into a fabric. Of the two views one shows the fabric in silhouette with the light behind it; the other shows the fabric as the eye would catch the gleam of the sequins. The fabric is a wool crepe.*

## WOOL IN THIS ISSUE


| | page |
|---|---|
| Beauty in the Warping Room (*A picture*) | 61 |
| The French Mix Their Wool with Hair and Feathers | 69 |
| Bigelow-Sanford Has a Plan for Employee Training | 67 |
| Double Plain Cloths—Color and Fancy Effects | 78 |
| Future of Woolen Card; Possible Improvement | 80 |
| Army Greatcoat | 102 |
| Winder Speeds | 102 |
| Fabric Wear Tester | 106 |

TEXTILE WORLD'S

# *Rayon Digest*

THE recent price advance in certain viscose yarns presented more complications than any similar action we recall in this market. The suddenness of the initial move, the long delay before the rest of the market followed suit, and the effect upon the competitive relationship between knitting and weaving yarns, were all factors contributing to this complexity.

The last-named consideration is of course the most important and most difficult one. Apparently, the advance was made on certain yarns, because a good call from weavers was being experienced on those numbers, and the advance was deemed warranted. Equally apparently, the giant of the market (150-40) was not included because softness in demand from knitters made it inadvisable.

Now there is no pre-ordained differential between one yarn and another in the rayon market, which cannot be altered if the producers see fit. However, the actual business of altering it presents difficulties which must be reckoned with. In this instance, the most serious difficulty was the emphasis placed inferentially upon the weakness in knitting yarns, by failure to include them in the advance. We would think this effect would offset some of the advantage gained from the improved margin in the weaving yarns.

In any event, the current sales position in knitting yarns is one requiring careful consideration by the producers if the present promising outlook in textiles generally is to be capitalized fully in this one branch.—*Editor.*

## *Henry Heads Weavers; Walcott Is Mourned*

The board of directors of the National Rayon Weavers Association meeting in New York Dec. 18, elected R. E. Henry to succeed the late Charles Walcott as chairman of the board of the Association. Mr. Henry, who is president of Dunean Mills, Greenville, S. C., is widely known as a textile leader, having been active for years in both the cotton and rayon weaving industries. He has been vice-president of the weavers association for some time. Among other posts he holds is that of vice-president of the Cotton Textile Institute.

The untimely death of Mr. Walcott came as a shock both to his friends within the association and to the rayon fabric industry as a whole. Like Mr. Henry, he too had been a leader in the association's activities since it started and had greatly aided its development. Mr. Walcott was elected chairman of the board of the association in October.

•

## *Merger Hits a Snag*

While the possible merger of the National Rayon Weavers Association with the National Federation of Textiles, Inc., continued to be a topic of active market interest among rayon weavers this month, prospects for the consummation of this idea were less promising. Official spokesmen for both sides said negotiations were "off" which was taken to mean that certain major obstacles had not yet been overcome.

•

## *F.T.C. Inquiry Resumed*

Refusal of Dr. Samuel Reinhard, treasurer of Arcadia Knitting Mills, to answer key questions on the ground that such would jeopardize the existence of his company, served to impede progress at resumption of Federal Trade Commission's investigation in New York, Jan. 6, of the rayon industry's alleged monopolistic practices.

•

## *Europe Makes Fast Strides in Staple*

Europe is due to make exceptional strides in production of staple fiber during 1936, according to advices reaching New York at the end of the year. These reports told of extensive projects in various countries, notably in Great Britain and Italy. The new staple fiber producing plant of Courtaulds Ltd., in England which is expected to be in operation next month, is credited with an annual capacity output of 20,000,000 lb. This contrasts with a total British output of 7,500,000 in 1935. Even more striking are the reports from Italy where, according to dispatches, Snia Viscosa is erecting a staple fiber plant of 35,000,000 lb. annual capacity, making it the largest staple fiber plant in the world. This plant is being built at Torino Stura.

•

## *1935 World Output By Countries*

Supplementing statements previously published in these columns indicating the 1935 world output of rayon passed the billion pound mark, TEXTILE WORLD's London, Eng. correspondent now sends preliminary 1935 figures. The figures confirm the earlier statements; they place total production of rayon yarn and staple for the world at 1,087,650,000 lb. against 836,625,000 in 1934. Details follow in millions of pounds:

| | *1935* | | *1934* | |
|---|---|---|---|---|
| | *Yarn* | *Staple Fiber* | *Yarn* | *Staple Fiber* |
| TOTAL ... | 970.5 | 117.2 | 787.0 | 49.7 |
| *of which*: | | | | |
| U. S. A. .. | 250.0 | 4.0 | 210.0 | 2.2 |
| Japan .... | 214.0 | 6.5 | 150.2 | 2.2 |
| Italy ..... | 125.0 | 64.0 | 95.0 | 20.0 |
| Britain ... | 112.0 | 7.5 | 88.7 | 3.0 |
| Germany . | 108.0 | 30.0 | 91.2 | 20.0 |
| France ... | 70.0 | 4.4 | 62.5 | 1.5 |

•

## *2 More Join Rayon's League of Nations*

The number of nations producing rayon will shortly be increased by two, it became known recently, when advices told of plans to introduce rayon manufacture in Ireland and Norway. The Irish project provides for erection of a yarn plant in Longford County, Irish Free State.

Norway's first rayon plant will be erected at Notodden.

•

## *A Big Job Done*

The end of the year brought completion of the dismantling of the $10,000,000 nitro-cellulose yarn plant of the Tubize Chatillon Corp. at Hopewell, Va., and final steps were being taken for shipment of the equipment to São Paulo, Brazil. The dismantling took five months and at one point employed 600 persons. With removal of the nitro plant, which employed 4,000 the only Tubize unit remaining at Hopewell is the knitting plant employing 350.

•

## *Rayon Price Trend*

Key rayon prices of Jan. 2 and a month ago, contrasted with those of the last two years, and including the recent upward revision of certain viscose and cuprammonium yarns, follow :

| Viscose Process | Jan. 2 1936 | Dec. 2 1935 | Jan. 2 1935 | Jan. 2 1934 |
|---|---|---|---|---|
| 75 denier (18-30 fils) | $0.90 | $0.87 | $0.92 | $1.00 |
| 100 denier (40 fils)... | .79 | .76 | .80 | .85 |
| 150 denier (40 fils)... | .57 | .57 | .60 | .65 |
| Acetate Process | | | | |
| 150 denier..... | .60 | .60 | .65-.70 | 1.00 |
| Cupra. Process | | | | |
| 150 denier (112 fils.).. | .65 | .62 | .65-.75 | .90 |

## *Some Viscose Yarns Advanced 2-5c.*

With the announcement Dec. 19 by the duPont Rayon Co. of a 2 to 5c. advance on certain viscose process yarns was precipitated a market uncertainty which did not abate until Dec. 30, when the Viscose Co. made known that its price list would conform to the new levels. The duPont rise affected all viscose yarns with the conspicuous exception of the most important item of all, 150-40. The omission of that number from the revision was due largely to the weakness prevailing in the knitting yarn division. Explaining the increase, officials of duPont pointed out that it applied chiefly to higher grade numbers, in which branch, they said, demand exceeded supply. The new list follows:

| | | Bright and Semi-Dull | | Dull | |
|---|---|---|---|---|---|
| | | Skeins | | Skeins | |
| Den. | Fil. | 1st | 2d | 1st | 2d |
| 75 | 30 | .90 | .87 | .92 | .89 |
| 75 | 45 | .94 | .92 | .96 | .94 |
| 100 | 40 | .79 | .77 | .81 | .79 |
| 100 | 60 | .83 | .81 | .85 | .83 |
| 100 | 100 | .86 | .83 | .. | .. |
| 125 | 50 | .68 | .66 | .70 | .68 |
| 150 | 60 | .62 | .60 | .64 | .62 |
| 150 | 90 | .67 | .65 | .69 | .67 |
| 150 | 150 | .70 | .68 | .. | .. |

The price readjustment, together with the normal holiday slackening made for easier buying at the end of December, but producers looked for accelerated activity later this month.

•

## *New Use for Staple*

With the constantly widening markets for spun rayon, indications now are that developments in this field may prove one of the significant aspects of 1936. Among the outstanding fabrics made of duPont spun rayon is Congo Cloth which has already gained a considerable foothold in men's and women's summer suiting. Last month it was announced that Congo Cloth would be used for the manufacture of corsets; it is claimed the fiber has especial value for this field because it has dull luster, does not wrinkle, may be washed or dry cleaned and will not shrink.

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## *Staple Fiber Notes*

**Call it a Wedding!** — The efforts to combine filament yarn with spun rayon have brought forth an interesting new knit fabric which is used for men's polo shirts. The characteristics of the two yarns are successfully blended resulting in a fabric of distinctly masculine appeal, it is reported.

**Japan's Prices Weaken** — Due to a price war in staple fiber, the Japanese quotations on this yarn have dropped from 18c. per lb. to about 14c. within a short period. This price is said to set a new world's low for staple fiber, and it emphasizes the growing competition which Japanese staple represents in the American market.

**Spun Rayon Suitings for Women**—The vigor and initiative which Italian producers show in developing spun rayon markets is having some interesting results; not the least is in the women's suitings field.

## RAYON IN THIS ISSUE


| | page |
|---|---|
| Rayon's Golden Age in Japan Cut Short by Tariffs.. | 68 |
| Looms per Weaver—Rayon Work-Assignment Study. | 72 |
| Cellulose Research at Boyce Thompson Institute.... | 74 |
| Drying and Sizing Cotton-Rayon Necktie Fabrics.... | 97 |
| Sizing Acetate Yarn ..... | 102 |
| Material for Bobbins ..... | 106 |


## *Industry Briefs*

**How linings are made**—Weaving, finishing and other steps in manufacture of rayon linings were shown in a group of photographs featuring a recent issue of *Pepperell News Sheet*, bulletin of the Pepperell Mfg. Co. The linings go into suits as high as $35 retail.

**Ball and Chain for Erlanger**—The entire sales organization of the North American Rayon Corp. assembled at a dinner at the Hotel Vanderbilt, New York, last month in honor of Arthur L. Erlanger, sales manager who has just been married. Gifts and verbal bouquets were the evening's highlights.

**Salesmen's Body Disbands** — Jack Arnoff, of Montauk Fabrics, Inc., president of the Silk & Rayon Fabric Salesmen's Association, which once numbered 400 members but which of late has been inactive, announced last month that the board of governors had decided to disband the body. He added, however, that the group might reorganize later on a larger scale.

**Two More Viscose Licensees**—Ross & Oberleder Silk Corp. and Eugene Messner, Inc., have been added to the companies which are now operating under the Quality Control Plan of the Viscose Co.

**New Jerseys Have Crepy Effect**—Use of crepe yarns in new rayon knit dress fabrics has given this line a distinctly smart draping quality and now permits a higher fashion rating for rayon jerseys, according to announcement of the fabric development division of the duPont Rayon Co.

•

## *Foreign Flashes*

**Canada May Change Tariffs**—Arguments for lower tariff rates on British rayon fabrics were the chief feature of the opening sessions of the Canadian Tariff Board hearing on this question, which was held at Ottawa last month. Representatives of Courtaulds Ltd. and Canadian Celanese, both opposed to reductions, attended the hearings but did not speak.

**"Rayon" More Popular in England**—The manufacturers of home furnishing fabrics are the latest British group to definitely adopt resolutions favoring official use of the term "rayon"; despite opposition of the acetate branch, associations representing these branches have recorded their decision with the British Board of Trade.

**French Fashions Stress Variety**—A few of the long list of rayon fabrics in the mid-season collections at Paris are: velvets, crepes, ribbed satins, stiff satins, taffetas, faille and cloky lames.

**Japan's Rayon Exports Rising:** The steady rise in Japan's exports of rayon textiles is shown in the following table:

| | 1929 | 1932 | 1933 | 1934 |
|---|---|---|---|---|
| | (Percentage of total exports) | | | |
| Raw silk ..... | 36.4 | 27.1 | 21.0 | 13.2 |
| Cotton textiles .... | 19.2 | 20.5 | 20.6 | 22.7 |
| Silk textiles ..... | 7.0 | 3.6 | 3.4 | 3.6 |
| Cotton yarn ..... | 1.2 | 1.5 | 0.8 | 1.1 |
| Knit goods ..... | 1.7 | 1.9 | 2.2 | 2.2 |
| Rayon textiles .... | 1.3 | 4.3 | 4.2 | 5.2 |

**New German Rayon Movie**—To increase consumer interest in rayon, a new movie, "Threads Embracing the World," will shortly be released in Berlin.

•

## *Rayon Mill News*

**Celanese Corp. of America, Inc.,** Amcelle, near Cumberland, Md., has awarded general contract to George F. Hazelwood, Cumberland, for new one-story addition, to be equipped as a dyehouse. Superstructure will be placed under way at once. All miscellaneous contracts for roofing, heating, plumbing, etc., have been let. Cost about $85,000, with equipment.

**Viscose Co. of America,** New York, N. Y., will soon begin superstructure for new one-story addition to mill at Parkersburg, W. Va., for which contract for steel frame superstructure recently was let to the Belmont Iron Works, Philadelphia.

**American Enka Corp.,** Enka, N. C., plans extensions and improvements, including installation of replacements and for increased capacity. Cost close to $500,000. Work will be carried out during 1936.

**Dixie Throwing Co.,** Greensboro, N. C., has completed a 70x96 ft. addition, in which machinery will be installed.

**Greensboro** (N. C.) **Weaving Co.,** a subsidiary of **Burlington Mills,** has let contract for a one-story addition, 120x140 ft., to be used in rayon weaving.

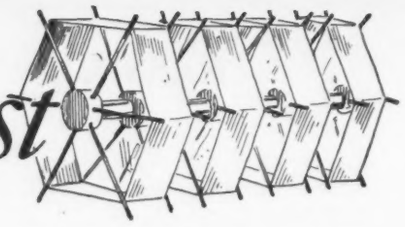
**Cleveland Cloth Mills,** Shelby, N. C., has added a second story to the office and put new roofs on 100 dwellings of the village, in addition to painting each home. The work represented an expenditure of $10,000.

**Brookside Mills,** Knoxville, Tenn., has purchased 450 new Draper looms for weaving rayon.

**Du Pont Rayon Co.,** Ampthill, Richmond, Va., has approved plans for new one-story addition to local mill, estimated to cost about $45,000, with equipment.

TEXTILE WORLD'S

# *Silk Digest*



THE problem of fiber identification, which is one of the major issues of the silk promotional program for 1936, is one of the most complicated questions with which the textile industry must deal.

There is, first, a difference of opinion as to the need for any emphasis on this phase. Those who doubt such need claim that purchasers of fabrics for apparel purposes (and that is the group at issue here) do not care what the constituent fibers are—but are interested only in appearance and price. We disagree with this contention, but at least it should be given consideration in any study of this problem.

Then, there is the distinction between intentional and unintentional misrepresentation. Even though the result may be the same, the approach toward checking the tendency is sharply different in the two cases.

Finally, there is the difficult question of feasibility. How far is it possible to go toward informing a consumer as to fiber content? Pages could be—and have been—written on this one point.

All of this is not to minimize the importance of fiber identification. It is merely to point out that the complications in the way must be faced realistically if it is to be more than a mere slogan.—*Editor.*

## *Raw Silk Importers To Function Alone*

The one definite aspect this month of the silk industry's rather confused outlook with respect to trade association identity was the fact that the silk importers were pushing their plans ahead for separate activity. These importers originally comprised the Raw Silk Group in the old Silk Association. They organized the Raw Silk Importers, Inc., in May, 1934, and this body was admitted to block membership in the National Federation of Textiles, Inc.

Last month, incident to the various negotiations under way regarding the future of the Federation, the Raw Silk Importers, Inc., resigned its membership. This resignation became effective Dec. 31. The importers' body, which has a membership of 16 importers and two brokers, has opened offices at 404 4th Ave., New York. The officers of the organization are: M. A. Salembier, president; H. Lee Morse, secretary; and B. H. A. Hofmann, treasurer. The first official action of the raw silk body since the separation was to approve a new set of rules for the sale and purchase of raw silk; these rules which are a modernized version of the old Silk Association code, are being distributed to the silk industry this month.

While the policies of the Raw Silk Importers, Inc., are not yet known, trade leaders generally expect this organization to become the focal point around which will center such silk industry divisions as remain.

Meanwhile, the bruited plans for a merger of the broadsilk group of the National Federation with the National Rayon Weavers Association, which would mean disruption of the Federation, were so badly ensnarled that leaders on both sides expressed much doubt regarding any early consolidation.

•

## *Silk Again Slides; Deflation Approved*

Continued recessions marked the raw silk market during December and when the holidays brought a temporary halt to buying, prices had declined about 8c. below the preceding month. Importers were disposed to view the deflation as healthy rather than otherwise; this attitude is consistent with their frank-spoken comments of a month ago when they blamed Japan for trying to "skyrocket" silk prices. With the best-selling numbers definitely below two dollars in the last days of December, they felt that prices had reached the stability point; confidence was expressed on some sides that there would be little further weakness shown.

Prediction of a rise toward the end of January likewise was made; this forecast was based on the expectation of curtailment in Japan, and also on the expectation of a pickup in demand from American hosiery mills. Little improvement is looked for from weavers in this country.

## *New Weekly Survey*

Inauguration of a weekly survey of raw silk activity which analyzes and interprets world market developments during the preceding week was announced last month by the Commodity Exchange, Inc., New York.

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## *Federation's Busy Year*

Code activities through the first part of the year and the defeat of the proposed compensating tax on silk and rayon were among the outstanding services of the National Federation of Textiles, Inc., to the industry during 1935, according to the Federation report which was issued Dec. 24. During 1935, the report states, the treasury department of the Federation "handled more than $300,000, mailed 13,400 bills, 5,200 monthly statements, issued 7,800 checks, received 7,200 checks, and issued 250 special financial statements and reports." The report adds that the Planning and Research Bureau in its service answered more than 8,000 telephone inquiries and 400 personal calls and sent out a total of 100 types of periodic reports involving the distribution of 35,850 copies.

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## *1936 Fabric Outlook*

With business only moderately good through the concluding quarter of 1935, broadsilk manufacturers were conservative in their predictions for the new year. Probably the healthiest factor was that mills entered 1936 in fairly good inventory position. Another point on which manufacturers laid emphasis was the expected enactment of the soldiers' bonus legislation. The release for consumer spending of such a large sum would undoubtedly mean a spurt in textile purchases, it is held, and the silk industry would come in for a good share of such business. One manufacturer said he believed that in spending bonus money the families of veterans would lean toward silk rather than to lower-priced textiles; he argued that price is not to be a major consideration when a person has a considerable cash sum available for purchases, and that this fact might militate against rayon or cotton.

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## *Silk Price Trend*

Key silk prices of Jan. 2 and a month ago as contrasted with those of the last two years follow:

| | Jan. 2 1936 | Dec. 2 1935 | Jan. 2 1935 | Jan. 2 1934 |
|---|---|---|---|---|
| Crack XX 13/15 white 78%..... | $1.97 | $2.04½ | $1.52 | $1.47 |
| Tram, 5thd Japan 85%. | 2.76 | 2.65 | 2.35 | 2.30 |
| Tram Crack XX 78%.. | 2.63 | 2.57 | 2.10 | 2.12½ |
| 60s-2, spun silk..... | 2.95 | 2.95 | 2.85 | 2.95 |

•

## *Silk Union Asks A.F.L. Aid in Penn.*

Efforts of the American Federation of Silk Workers to get the support of the American Federation of Labor in its attempt to organize silk mill workers in Pennsylvania took concrete form last

month. At its convention in New York, the Federation of Silk Workers adopted a resolution formally asking for aid of the Committee of Industrial Organization of the A. F. of L. in this drive. It was stated that the silk workers union already has obtained a promise of support from John L. Lewis, president of the United Mine Workers and head of the A. F. of L. industrial committee.

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## *1935 Deliveries Rise*

Silk deliveries for the year 1935 totaled 497,143 bales against 461,706 in 1934 and 469,427 in 1933. The monthly average for each year respectively was 1935—41,429; 1934—38,476; 1933—39,119. December 1935 deliveries were 12.7% above the preceding month. Key figures in bales follow:

| | Imports | Approx. Deliveries | Stocks at Warehouses |
|---|---|---|---|
| Oct., 1935.... | 56,264 | 48,167 | 46,777 |
| Nov., 1935.... | 41,693 | 37,012 | 51,458 |
| Dec., 1935.... | 39,042 | 35,559 | 54,941 |

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## *Fabric Windows Win Silk Prize*

Classic simplicity was the keynote of the window display at B. Altman & Co., New York, which won first prize in the nation-wide window display contest held by the International Silk Guild as part of the Silk Parade of 1935. This window, which was arranged by R. B. Wallace, was one of four that high-lighted silk in the following fabrics—velvet, triple sheer crepe, plain crepe, and novelty crepe. The second, third, fourth, fifth, sixth, and seventh prizes were won, respectively, by Geo. B. Peck Co., The Jones Store, both of Kansas City; The Gilchrist Co., Boston; Le Bas, hosiery specialty shop, New York; The Emporium, San Francisco, and the D. M. Read Co., Bridgeport, Conn. The windows were judged on the basis of 40% for "selling power" for silk, 30% on the artistic quality of the display, and 30% on originality.

The display contest proved effective in stimulating interest in the window displays and it was noted that the beauty and sales effectiveness of the displays far exceeded that in the Silk Parade of 1934.

## SILK IN THIS ISSUE


| | page |
|---|---|
| Looms per Weaver—Silk Work-Assignment Study... | 72 |
| Silk Soaking for Three-Carrier Knitting..... | 85 |
| Silk-Loom Pick ..... | 103 |
| Chafe Marks in Satin ..... | 103 |
| Material for Bobbins ..... | 106 |


## *Industry Briefs*

**Japanese "See America"**—The American market for raw silk consumption was being studied at first hand last month by a party of four representatives of the Japanese Government Raw Silk Intelligence Bureau. In the party were: T. Ishiguro, H. Shiga, M. Matsumoto and Y. Shimodo. The party spent a good portion of December visiting mills in Greensboro and Charlotte, N. C., and in other parts of the South.

**Phosphorescent Gowns Next Season!**—The lady of fashion next winter will be all "lit up," according to Mme. Rosevienne, Paris couteriere, who is visiting New York. She predicts a vogue of silk evening gowns, the fabric of which will be treated with phosphorescent dyes to make them luminous in the dark.

**Prize Prints on Tour**—The "Prize Print" exhibit sponsored by the American Federation of Arts in cooperation with the International Silk Guild opened Dec. 16 simultaneously in Los Angeles and Chicago and after a week in these cities it proceeded to various other important centers across the continent.

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## *Silk Mill News*

**Haskell Silk Mill,** Westbrook, Me., is concluding arrangements for a Federal loan of $100,000 through R.F.C., to be used for resumption of operations at local mill, closed for some time.

**Pioneer Silks, Inc.,** Hattiesburg, Miss., a division of Domestic Silks Inc., New York, has started operations with 275 workers; 72 looms are on two shifts and 46 more looms are to be installed in a few weeks. It is hoped to have 215 looms running by the end of the year.

**Doylestown** (Pa.) **Plush Co.,** recently organized, has acquired local mill and real estate of Derk Mfg. Co., at public sale, and will improve and occupy.

**Bentley Silk Mill,** Pittston, Pa., is considering rebuilding of portion of mill recently destroyed by fire. Loss reported in excess of $90,000, with equipment.

**Charles Van Houten,** Scranton, Pa., and associates have taken over property on Pierce Ave., Pulaski, Va., as site for new one-story mill, to be used for broad-silk production.

**King Richard Mill, Inc.,** Quidnick, R. I., lately organized, has purchased lower mill of H. & H. Mfg. Co., and will install equipment at once for a new silk mill.

**Bates Silk Mills, Inc.,** Warren, R. I., have been organized by interests formerly identified with the **Old Colony Silk Mills Corp.,** New Bedford, Mass., to take over the local mill of Kaufman Brothers, Child St., Warren. Plant will be run as a commission weaving mill.

**Navlen & Son, Inc.,** Cliftondale, near Clifton Forge, Va., have taken over a former local furniture factory and will remodel and equip for new silk mill on ribbons, etc.

**South Boston** (Va.) **Weaving Corp.** will occupy under lease the new one-story mill now in course of erection by South Boston Factory Corp., and will equip for silk ribbon production.

**Royal Silk Mills of Canada, Ltd.,** Montreal, Que., have leased property at Coaticook, Que., and will improve and equip. Present plant at Pointe-aux-Trembles, Que., will be removed to new location and increased capacity carried out. New mill will give employment to about 65 persons.

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## *Silk Financial News*

**Portland Silk Co., Inc.,** Middletown, Conn., has filed notice of company dissolution under State laws.

**Cheney Bros.,** South Manchester, Conn., has received extension to Feb. 21 for filing plan of reorganization under Sect. 77B.

**Karl H. Toll, Inc.,** Clifton, N. J., has been organized with capital of $50,000, to operate a local silk mill. New company is headed by J. Edward McQuillen and Karl H. Toll, 119 River Drive, Delawanna, Clifton.

**Medal Silk Co.,** Paterson, N. J., has been placed in hands of Barney Fire and J. J. Corcoran, as temporary receivers.

**Hamlet Textile Co.,** Pawtucket, R. I., closed down on Jan. 1 following a statement by Charles D. Jencks, president, that the silk and rayon industry was in chaotic condition and that reopening depended on market conditions.

**Bruck Silk Mills, Ltd.,** Montreal, Canada, has completed a $25,000 addition to its plant. Its directors have been increased from 9 to 11. L. S. Lee and P. P. Hutchison having been added. For the fiscal year ended Oct. 31, 1935, net profit amounted to $150,312, compared with $184,238 for the preceding year.

*Altman's prize-winning window*

TEXTILE WORLD'S

# Knit Goods Digest

A REMARKABLE response from the industry was accorded the action of the National Association of Hosiery Manufacturers in urging plans for curtailment of mid-winter production. This is most encouraging. What we liked about the association's recommendation was its forehandedness. It was not withheld until the statistical picture was sour. On the contrary, conditions were so promising when the warning was first sounded that many in the trade seemed to question its necessity. The response of the industry as a whole eliminates this question.

We wish there was more preventive action of this type; there would be less cause for emergency treatment of the heroic sort which nearly kills the patient.—*Editor.*

## *Kayser Leads Hosiery Price Rise*

True to expectations of mid-December hosiery prices showed a new firmness at the end of the year, reflecting the higher prices announced for Spring by Julius Kayser & Co. The new Kayser list was made public Dec. 28, and it was assumed the market would follow suit. Kayser raised prices 10 to 75c. per dozen. The so-called "budget hose" went up from $6.35 to $6.50 and one popular three-thread number rose from $7.25 to $7.35. The company said the advance was necessitated by the rise in raw silk prices and by the costs to be imposed by the new Social Security Law.

•

## *Women's Hosiery Mills Curtail*

In an effort to prevent overproduction of women's hosiery in the slack mid-winter period, Earl Constantine, managing director of the National Association of Hosiery Manufacturers sent out a questionnaire last month asking manufacturers what their production plans were. Up to the holidays 136 replies had been received and of these 127 stated that they would curb production in one form or another, and 19 would produce only according to orders for the next two months. Of the entire 137 only nine firms replied that they would run steadily all winter.

•

## *Underwear Inventory of Jan. 6 Urged*

After the AAA invalidation, the Underwear Institute advised members to take inventory as of Jan. 6 against rebate demands, and to hold prices pending an early meeting. . . .

Underwear manufacturers entered 1936 in fairly satisfactory mood as regards the year just closed. The comment most generally heard about 1935 was that "it might have been worse." While production in the first five months of the year was 2.4% under the same period in 1934 (Bureau of Census figures) the five months just following dissolution of the NRA showed a 2.6% increase over the same period in 1934. Indications pointed to a rise of 1½ to 2% in total 1935 output over 1934, with shipments in reasonable ratio. Analyzing the outlook the Underwear Institute in its publication *Institute News,* urged caution against building up reserve stocks in mills.

•

## *"Swim Week" Plans Cover Wide Range*

Plans for "Swim-For-Health Week," beginning June 4, are already pretty well crystallized. This promotional event is being held jointly by the National Knitted Outerwear Association and the National Amusement Parks, Pools and Beaches Association; the program includes many kinds of propaganda. In addition to posters, window trim and photographs, which will be the chief material distributed, the event also will include news releases through four major film companies, tie-ups with film celebrities, syndicated magazine and newspaper articles, and an extensive program of radio hook-ups. Sidney Korzenik, secretary of the Outerwear Association, said the drive would center on stores.

•

## *Wishing You the Same!*

Leaders in the outerwear industry were agreed on characterizing 1935 as a very satisfactory year. Commenting on the 1936 outlook, Ingram Bergman, president of Bergman Knitting Mills, and president National Knitted Outerwear Association, said he saw "no reason why the spring of 1936 should not be as good as and possibly better than last spring."

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## *Japan as Competitor*

The apprehension being voiced by leaders of the three knit goods branches as to the Japanese competition problem found further confirmation last month in news from Tokio that important Japanese spinners are turning more to production of knit goods for export. The Tokio trade is hoping that, since rising tariff walls are curtailing exports of woven goods, further exports on knit goods may prove a solution. So far no major foreign outlet has raised any serious tariff barriers against Japanese knit goods, it is pointed out.

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## *Maybe They're Toasted*

Give your hosiery a little singeing and it will be right in fashion for Spring. According to the 1936 Spring hosiery color card which the Textile Color Card Association issued in mid-December, "Burnt" shades are to be a highlight in the color scheme. Among the "Burnt" shades cited are numerous glowing tones including "Burnt Nude," "Burnt Ochre" and "Burnt Copper." "Club Colors" the second group accents blue, wine and green.

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## *Hosiery Sales Up 10%; Stocks Up 9%*

Hosiery shipments during November, 1935, totaled 10,231,026 doz. pr., or an increase of 10% over November, 1934, according to the monthly Statistical Bulletin of the National Association of Hosiery Manufacturers. This brings the shipments for the first eleven months of the year to 102,619,727 doz. pr., or an increase of 8% over the corresponding period of the previous year. For all types of silk hosiery, woolen hosiery, and children's hosiery other than ribbed goods, eleven months' shipments in 1935 exceeded those of the entire year 1934.

Production during the month was 10,293,291 doz. pr., an increase of 9% over November, 1934. Stocks were generally reduced during the month, except for a normal seasonal increase of 750,000 doz. pr. in anklets.

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## *19 Mills Quit N. Y.*

Unfair competitive conditions in the Metropolitan area of New York have forced 19 knitted outerwear mills to move to other communities within the last 18 months, and 60 more firms are contemplating either liquidation or removal, Harold R. Lhowe, executive director of the National Knitted Outerwear Association stated last month. Mr. Lhowe made the statement in a letter to Charles E. Murphy, of the Department of Finance of New York City.

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## *Industry Briefs*

**Putting on the Ritz**—Swimsuit manufacturers were busy last month picking out the ritziest 1936 numbers to be featured by selected beauties in a Miami Beach news reel. A call for such garments was made by the National Knitted Outerwear Association; four news reel companies will distribute the films.

**Solomon Succeeds Wersba**—Appointment of Arthur Solomon to succeed Robert Wersba as manager of the Chicago office of the Julius Kayser & Co.,

was announced by Ralph H. Baruth, vice-president.

**Hosiery Being Cheapened?**—Charges have been made by Edith Nourse Rogers, Representative in Congress from Massachusetts, in a message to the U. S. Bureau of Standards that the American consumer is being made the victim of a tendency toward cheapening hosiery which continue to sell at high prices. She asked the Bureau to make a hosiery test.

**Mueller on Show Committee**—T. H. Mueller, of Laros Textiles Co., has been appointed representative of the underwear industry on the 1936 Knitting Arts Exhibition, it is announced by Ralph M. Jones, president, Underwear Institute.

**Durham Decision O.K.'d**—The recommendation of the board of directors of Durham (N. C.) Hosiery Mills to discontinue manufacture of women's popular-priced seamless hosiery because, as stated, most women want full-fashioned, was approved last month by the stockholders. The seamless division of plant No. 1 was closed Dec. 20.

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## *Knitting Mill News*

**Cooper Wells Co.,** Decatur, Ala., has let contract for a $50,000 addition to its hosiery mills. Work started Jan. 1. The increase will provide for 65 additional operatives.

**Unique Knitting Co.,** Acworth, Ga., has arranged for purchase of machinery and equipment of the **Pilling & Madeley Mill, Inc.,** Philadelphia, Pa., discontinuing operations through the retirement of its president, Frank E. Morris, and will remove same this month to the Acworth mill, where an expansion program will be carried out.

**Richmond Hosiery Mills,** Rossville, Ga., are planning for early removal of branch mill at Daisy, Tenn., to main plant at Rossville, where production will be concentrated in future.

**Paducah (Ky.) Hosiery Mills, Inc.,** are considering early construction of new one-story addition, 60x150 ft., to branch mill at Murray, Ky. Cost over $45,000, with equipment.

**Edward Nicholas,** Shirley, Me., has set up a local home knitting industry by importing hand operated knitting machines for use by the citizens of the town.

**Massachusetts Knitting Mills,** Boston, Mass., has concluded negotiations with the Chamber of Commerce, Philadelphia, Miss., for new local plant. A one-story mill, totaling about 50,000 sq.ft. floor space, will be built by local interests and occupied by the company under long-term lease. Initial installation will include about 80 knitting machines and accessory equipment.

**R. & G. Knitting Mills, Inc.,** New York, N. Y., have been chartered with capital of 100 shares, to take over and expand company of same name at 22-26 West Thirty-second St., which has recently leased property at Williamsport, Pa., for a new mill to give employment to about 500 persons.

**Thornton Knitting Co.,** Denton, N. C., is setting up 40 half-hose machines in the Rogers Hosiery Building.

**Guilford Hosiery Mills,** High Point, N. C., awarded contract for two-story brick addition to dyeing department, with reinforced concrete floors and steel sash, to J. O. Connor, local builder. About 30 new knitting machines will be installed later.

**Harrill Knitting Co.,** Rutherfordton, N. C., has lately increased its equipment on half hose.

**Stanfield** (N. C.) **Hosiery Mill** is building an addition in which 30 knitting machines will be housed.

**Pilot Full-Fashion Mills, Inc.,** Valdese, N. C., have started work on new one-story addition to total 15,000 sq.ft. floor space. About 23 knitting machines and accessory equipment will be installed. The firm recently bought machinery from the William Brown Co., Philadelphia.

**Lee I. Robinson Co.,** Philadelphia, has bought 17 Reading 42-gauge leggers and footers from the Philadelphia plant of Propper-McCallum Hosiery Co.

**Franklin Hosiery Mills,** Williamsport, Pa., plans installation of 11 new machines at its plant in the former U. S. Rubber Co. building in that city, which will increase its facilities by 30%.

**Jac Feinberg Hosiery Mill,** Rock Hill, S. C., will add 10 hosiery machines.

**Pannill Knitting Co.,** Martinsville, Va., has purchased the knititng equipment of Wm. Sloane & Co., Norfolk, Va., which has been moved to Martinsville and is being installed there. The firm recently bought similar machinery from Union Mills, Hudson, N. Y. It now has a daily capacity of more than 1,000 doz. fleece-lined garments.

**Van Dyke Knitting Co.,** Milwaukee, Wis., is moving to McComb, Miss., where a new plant with 75,000 sq.ft. floor space has been completed. Offices of the company will remain in Milwaukee as will also the paper carton division.

## KNIT GOODS IN THIS ISSUE


| | page |
|---|---|
| Under-Drive for Seamless Knitting; Yarn Retriever | 81 |
| Stopping the Carriers on Full-Fashioned Machines | 82 |
| Silk Soaking for Three-Carrier Knitting | 85 |
| Holes in Leg Fabric | 103 |
| Distorted Wales in Full-Fashioned Hosiery | 103 |

*Hosiery is shown as it appears on the leg with actual fabric in this novel cut-out color-card which has been patented by Gotham Silk Hosiery Co.*

## *Knit Financial News*

**Connecticut Sportwear, Inc.,** Fairfield, Conn., has been incorporated to manufacture sports wear with a capital of $50,000. William L. Zepp, 138 Wheeler Ave.; Bernard H. Trager, 284 Salem St., and Helen C. Stargon, all of Bridgeport, are the incorporators.

**Everett Norfolk Co.,** Lebanon, N. H., was sold at auction on Dec. 30.

**Krauss-Fels-Metzger Co., Inc.,** Brooklyn, N. Y., has been chartered with capital of 150 shares, to operate a knitting mill. New company is headed by Abraham Krauss, 535 Parkside Ave., and Murray C. Metzger, 46 Pulaski St., both Brooklyn; and Rene R. Fels, 414 West 121st St., New York.

**Thermo Mills Inc.,** Hudson, N. Y., has sold equipment, trademark and patents to Yund, Kennedy & Yund, of Amsterdam.

**Lebanon Knitting Mills, Inc.,** New York, N. Y., have been chartered with capital of $250,000, to operate a knitting mill. New company is headed by interests identified with the Belle Knitting Mills, Lebanon, Pa., including Sanford A. and Milton Koenigsberg, 310 South Eleventh St., Lebanon.

**May Hosiery Mills, Inc.,** Burlington, N. C., purchased a half interest in the **Vance Knitting Co.,** Kernersville, N. C., and the name will be changed to the **May-Vance Hosiery Mills.** W. H. May is president, and J. H. Griffith, secretary-treasurer.

**Quality Mills, Inc.,** Mount Airy, N. C., have been formed with capital of $100,000, to operate a knitting mill. New company is headed by W. E. Lindsay and H. O. Wolts, both of Mount Airy.

**Chambersburg, Pa.** — The Community Progress Corp. has raised $50,000 to erect a building for a full-fashioned hosiery mill.

**William Brown Co.,** Philadelphia, Pa.— Mill, machinery and other assets of this company have been acquired by the Fidelity Mutual Life Insurance Co., Philadelphia, on bid of $330,000 at recent public auction, and title has been conveyed to new owner by the receivers.

**Rizac Mfg. Co.,** Chattanooga, Tenn., formerly the **Volunteer Knitting Mills,** has filed a voluntary petition in bankruptcy, listing liabilities at $714,530.43, and assets, represented by cash, $44.49. Former Volunteer mill is now the property of the Brown Knitting Co., Warsaw, N. Y.

**Bassett (Va.) Knitting Mill, Inc.,** has been sold by a representative of creditors and stockholders for $60,000 to J. D. Bassett, Sr., and associates.

TEXTILE WORLD'S

# *Processing Digest*

OF particular interest is the resolution adopted last month at a meeting of the National Association of Finishers of Textile Fabrics that cotton finishers add a surcharge of 1½% of the total of each bill rendered on orders received on and after Jan. 1. According to the association, this surcharge is necessary to meet the increased costs of labor, materials, clerical services, and supervision resulting from the operation of new Federal and State laws and regulations. The resolution points out that the finishing industry as a whole is, and for many years has been, operating under conditions which have resulted in great losses and in the closing of many plants, and that it cannot absorb these additional costs.

During recent years the officers and members of the finishers' association have devoted much time and thought to the devising of methods whereby the industry can be put on a profit-making basis. Because of its simplicity, this latest move has much to recommend it.—*Editor.*

## *Adopt New Nomenclature for Light-Fastness of Dyes*

A new system of indicating the fastness to light of dyeings of various depths and on various fibers has been adopted by four of the leading German and Swiss dye manufacturers. Under this system, the poorest fastness to light will be marked 1, and the best will be marked 8. The translation of the numerals into words will, therefore, be: 1, small; 3, moderate; 5, good; 6, very good; 7, excellent; and 8, outstanding.

In developing the system, exhaustive trials were made covering the influence of air, moisture, fiber, temperature, etc., on the test, a range of 72 specially selected dyeings on various fibers was exposed in 20 places from latitude 65N and 38S, and from about sea level to a height of 3,694 meters. The result of these tests confirmed the results of previous trails; viz., that wool dyeings show a much greater uniformity in the degree of fading under varying conditions than do dyeings on other fibers, especially cotton. For this reason, the use of eight type dyeings on wool was chosen for the new scale.

This scale of types is said to make it possible to establish at any time the fastness to light of dyeings, because (1) the scale can be reproduced without difficulty; (2) it is independent of climatic conditions; and (3) it is possible to compare the fastness to light of dyeings of any depth and shade on any kind of material.

The manufacturers have agreed to carry out tests and to grade their products according to the fastness at three different depths of shades, which, as a rule, are in the proportion of ½:1:2 to one another. The dyeings prepared in depth 1 are chosen in such a way that they agree with each other in strength in all shades, and on all materials, with the exception of navy blue and black, the figures for which are given in fuller shades.

The organizations which worked out the light fastness scales are the I. G. Farbenindustrie A.G., Frankfort a. Main; the Gesellschaft für Chemische Industries, Basel; J. R. Geigy A.G., Basel; and the Chemische Fabrik vorm. Sandoz, Basel.

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## *Hosiery Degumming Agent*

Development of a new degumming agent for the hosiery trade has been announced by E. F. Houghton & Co., Philadelphia. This product, which is known as Scourol W. P. Powder, has been manufactured to give a pH value of 10.2 at every working concentration. It is stated that as the degumming proceeds, the pH value does not decrease materially, becoming lowered only to a point where there is no danger of attacking the fibrin, but at the same time not depleting its ability to remove the sericin or gum.

Other advantages cited for this compound are that it is readily soluble and thus can be rinsed readily from the goods, has a cushioning and lubricating effect which keeps the goods from tangling in the bags and prevents chafing, does not result in an objectionable added luster; does not hydrolyze rapidly nor react with hard water to produce lime curds, and has the good penetrating properties needed to carry the degumming agent to the tightly knit portions of the heel and seam.

## *Silk Dyers and Printers Increase Prices*

Advances in the charges for silk and rayon processing were announced in mid-December. Increases of 1 to 2c. were made on the more important items, such as pure dye satins of 24 to 28 lb., pure dye cantons in both weights, and the acetate and silk mixtures. A somewhat higher increase was announced for the pure dye 55x84.

Following the increase in finishing prices, it was made known that leading silk processors are offering price protection to their customers. This takes the form of an agreement which provides that in the event the finisher accepts from the customer an order for a given construction at a price lower than the Dec. 17 level, he will credit the customer the amount of such reduction on each yard of goods of that construction ordered by the customer subsequent to Dec. 17. The credit will be limited, however, to goods remaining unsold by the customer on the date of the price reduction. The agreement is subject also to the proviso that after Dec. 31, the customer gives no orders to finishers who have not granted similar guarantees.

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## *Dye-Print Service Elects Officers*

Election of Joseph Seyer, president of the Seyer Dyeing and Finishing Co., as president and treasurer of the Dye Print Service Corp., (T. W., November, 1935, p. 128) a cooperative organization of dyers and finishers was announced last month. Mr. Seyer succeeds John J. Holder, who was elected second vice-president. Other officers of the Dye-Print Service Corp. are: Alfred Bohny, Modern Central Silk Dyeing and Finishing Co., first vice-president; A. E. Goodman, Lenox Piece Dye Works, secretary; and Peter Fiory, Fiory Dye Works, assistant secretary.

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## *New Dyes*

General Dyestuff Corporation announces the following new products:

Brilliant Benzo Fast Green GL, a direct dye producing clear, yellowish green shades of considerably better fastness to light than those obtained with the older Brilliant Benzo Green B; Fastusol Pink Pink BBA, a direct dye giving bluish pink shades of very good fastness to light and good fastness to washing; Diamine Bordeaux BA, a direct dye producing full shades of bordeaux which can readily be discharged to a clear white with Rongalite C; Alizarine Direct Blue 6G, a homogeneous acid dye giving greenish blue shades of very good fastness to light; and Celliton Discharge Red BBL, yielding clear bluish red shades on cellulose acetate of good to very good fastness to light and dischargeable to a pure white with Decroline.

Alizarine Supra Sky G, a homogeneous acid dye yielding brilliant greenish blue shades of very good fastness to light; and Diaminogen A Extra, which produces

direct bluish gray dyeings, and when diazotized and developed with Developer A or MT, bluish or greenish grays or blue blacks or jet blacks of good fastness to washing.

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## *New Detergents and Wetting Agents*

Two new wetting agents and detergents, known as Nacconol KP and Nacconol KPR, have been announced recently by National Aniline & Chemical Co., Inc., 40 Rector St., New York. These compounds, which are described as sulphonated derivatives of synthetic compounds of fatty or oily character, are soluble in soft or hard water and in solutions of acids or alkalis. Both compounds are chemically identical, but Nacconol KP is a technical product, light brown in color and, therefore, recommended for use only in those operations where the color of the product is of little importance. The Nacconols are recommended by the manufacturer for use as scouring, washing, wetting out, and leveling agents.

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## *Water-Repellent*

A new material for making fabrics water-repellent, known as Aridex-WP, has been developed by the research laboratories of E. I. duPont de Nemours & Co., Wilmington, Del. It is stated that treatment with this compound makes fabrics shower-proof and spot-proof without coating the goods.

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## *Industry Briefs*

**Sanforizing in Europe** — Cotton finishers in Europe are rapidly adopting the Sanforizing process, according to John C. Turrell, head of the Sanforizing Division of Cluett, Peabody Co., who returned from Europe recently. He states that Switzerland and Germany are especially active in using the shrinkage process.

**Canadian Association of Textile Colorists and Chemists** met at McMaster University, Hamilton, Ont., last month and discussed the package dyeing of silk rayon. This subject was presented by E. Brandwood, of Canadian Cottons, who gave information on the Franklin, Obermaier, and Brandwood systems.

**The Perkin Medal** of the Society of Chemical Industry was presented to Warren K. Lewis, professor of chemical engineering at Massachusetts Institute of Technology, at a meeting of the society on Jan. 10, 1936, in New York, held jointly with the American Chemical Society. The award has been made in recognition of Prof. Lewis' creative activities in chemical engineering.

**Surgitex in Hospitals**—Surgitex, the waterproof silk processed by Westinghouse, is being bought actively by hospitals and physicians for hospital sheeting and garments, it announced. The Holland-Rantos Co., manufacturers of the fabric, also are making it into doctors' raincoats, for which they report a good call.

## PROCESSING IN THIS ISSUE


| | page |
|---|---|
| Transmutation of Fibers Prophesied by A.A.T.C.C. | 70 |
| Silk Soaking for Three-Carrier Knitting | 85 |
| Over-All Economy in Printing Machine Drives | 86 |
| Drying and Sizing Cotton-Rayon Necktie Fabrics | 97 |
| Sizing Acetate Yarn | 102 |
| Chafe Marks in Satin | 103 |
| Fabric Shrinkage Tester | 106 |
| pH Meter | 106 |


**Moving Day at Pacific** — Plans are now being put into effect at the Pacific Mills, Lawrence, Mass., by which the anti-crease operations that have been conducted in the worsted division will be installed by the Pacific Print Works plant. The machinery now is being set up in the new quarters.

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## *Finishing Plant News*

**Victoria Textile Printing & Dyeing Corp.,** New York, has acquired space in the Potter Seybold plant at Derby, Conn., and is moving equipment so as to start operations this month. Part of the plant may be leased to leather goods manufacturers.

**Iredell Finishing Co.,** Statesville, N. C., was recently organized and put into operation with D. Van Horn as manager.

**Piedmont Print Works, Inc.,** and **Southern Bleachery, Inc.,** both of Taylor, S. C., will be known in the future as **Southern Bleachery and Print Works, Inc.**

**Rock Hill** (S. C.) **Printing & Finishing Co.,** is awarding sub-contracts for new one and two-story additions to mill, 100x150 ft., and 30x60 ft., respectively, including structural steel framing to Southern Engineering Co., Charlotte, N. C., and to Easterby & Mumaw, Charlotte, for reinforcing steel. The Fiske-Carter Construction Co., Spartansburg, S. C., is general contractor. Cost close to $150,000, including equipment.

**Cranston (R. I.) Print Works,** have purchased the East Webster, Mass., mills of the Slater Co., comprising eight buildings. The Slater mills had been closed since March.

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## *Finishing Financial*

**Derby** (Conn.) **Dyeing & Finishing Corp.** has been organized with capital of $50,000, to operate a local mill. New company is headed by James F. Fahy and Frank S. Bergin, 42 Church St., New Haven, Conn.

**Arnold Print Works,** North Adams, Mass., reorganizing under Sect. 77B, has received extension until March 31 for filing of its plan. There is to be a court hearing in Boston Jan. 20 at which creditors and stockholders may show cause why they should not be divided into classes according to the nature of their claims.

**D. C. McAllister Co.,** Belleville, N. J., have been given till Jan. 15 to file reorganization plan under Sect. 77B.

**Atlas Finishing Co.,** North Bergen, N. J. —Former mill of this company at Paterson Plank Rd. and Grove St. has been purchased by the Dell Realty Co.

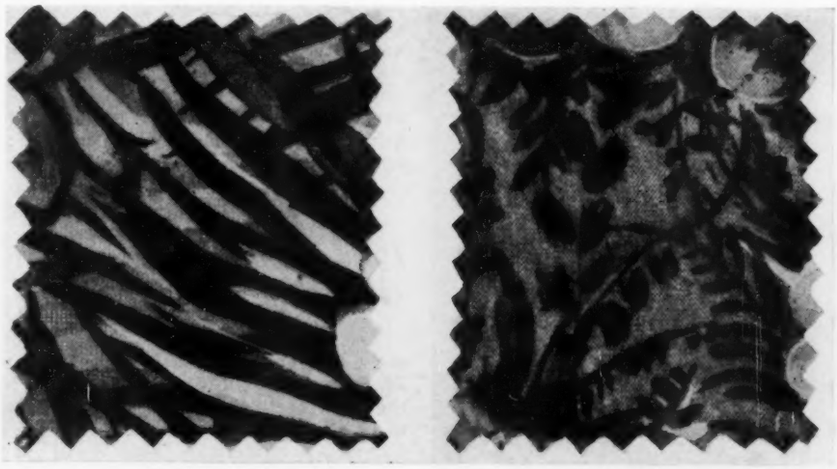
**American Processing Corp.,** Paterson, N. J., recently organized with capital of 1,200 shares, plans operation of new local dyeing and finishing plant. New company is represented by George Surosky, 126 Market St., Paterson.

**Lido Piece Dye Works, Inc.,** Paterson, N. J.—Assets of this concern subject to all liens have been sold by Receiver E. J. O'Bryne to Frank Serra for $400 as approved by the court.

**Monarch Dye Works, Inc.,** Paterson, N. J., have been organized with capital of 1,000 shares, to operate a local dyeing and finishing plant. New company is represented by Emanuel Shavick, 140 Market St., Paterson.

**United Textile Print Works,** Long Island City, N. Y., has offered a plan of reorganization under Sect. 77B.

**C. M. Piece Dyeing Co.,** Brooklyn, N. Y., has filed a petition for reorganization under Sect. 77B.



*Photographique prints and a new finish are featured in the Ameray crepes of Crown rayon offered for the coming season by Ameritex, a division of Cohn Hall Marx Co., New York.*

**TEXTILE WORLD'S**

# *Engineering Digest*

TEXTILE mills, because of the nature of the fibers processed therein, have always been one of the most fertile fields for the sale of air-conditioning equipment. Consequently, the industry watches with a certain amount of older-brother-attitude the extension of this phase to other industries and particularly to the housing field. Such statements as that by A. R. McGonegal, chief plumbing inspector of Washington, to the effect that the increasing use of air-conditioning equipment soon will over-tax the nation's water supply is a graphic index of this trend.

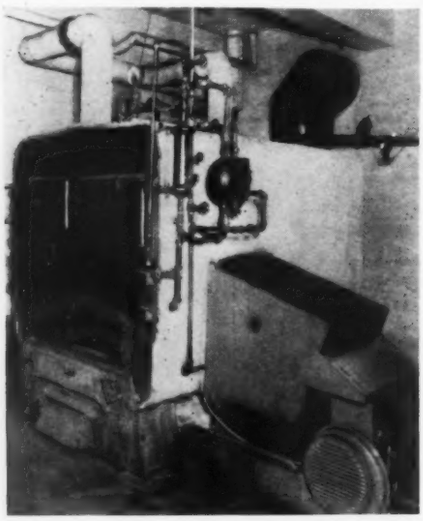
However, the textile industry should not let its attitude verge toward smugness. It still has a lot to do itself—in modernizing its own air-conditioning units, and in considering this equipment as an adjunct to employee comfort, as well as to efficient operation.

Textile mills still represent a vitally important market in this respect.—*Editor.*

## *Greensboro Mill Cuts Fuel Cost 20% With Stoker*

Two years ago officials of Greensboro Full Fashioned Hosiery Mills, Greensboro, N. C., of which F. Osborne Pfingst is president, made an intensive study of manufacturing costs and reached the conclusion that a substantial saving could be made in fuel costs. The first step was installation of an automatic coal stoker—an Iron Fireman—in place of hand firing.

"The Iron Fireman cut fuel costs slightly more than 20%, but fuel savings are only one of the benefits," said Mr. Pfingst. "It is now possible, for the first time, to maintain an even temperature throughout the mill. Smoke has been eliminated."



*Iron Fireman stoker installed at Greensboro (N. C.) Full-Fashioned Hosiery Mills.*

At the Greensboro mill, a higher employee morale has been noticed and efficiency of workers has increased materially by the maintenance of even heat. It is pointed out that hosiery mills, in general, have given automatic coal burners more exacting tests than almost any other type plant, because of sudden demands for large quantities of steam, such as the dye house often requires.

When more steam is demanded from a stoker-fired boiler, automatic controls immediately go into action and green coal is fed to the underside of the fuel bed. This "forced underfiring" is the secret of the automatic stoker's ability to get more heat out of a less quantity and cheaper grade of coal. Such firing permits the fuel to approach the fire from the bottom and gradually give off its gases. These gases are mixed with air under pressure and burn completely as they pass up through the firebed. By the time the coal reaches the firebed, nothing by carbon and ash remain. The carbon burns with intense heat, and the ash fuses into a clinker which falls away and is easily removed.

—MELVIN ARNOLD

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## *Power Engineering Conference*

The Sixth Midwest Power Engineering Conference will be held April 20 to 24, inclusive, at Chicago, sponsored by the local sections and regional divisions of American Institution of Electrical Engineers, American Society of Mechanical Engineers, Edison Electrical Institute, American Society of Civil Engineers, Western Society of Engineers, National Safety Council and American Society of Refrigerating Engineers. Officers and members in charge of the program are F. D. Chase, president; J. R. VanPelt, chairman; O. A. Anderson, Frank Innes, J. E. Kearns, G. E. Pfisterer, and K. A. Auty, all of Chicago. Official meeting headquarters will be the Palmer House, but afternoon meetings will be held at the International Amphitheater, in order that the members may take advantage of the Seventh Midwest Engineering & Power Exposition scheduled to be held there at the same time the conference is held. Headquarters for the conference are 308 West Washington St., Chicago; headquarters for the exposition are 1 North Lasalle St., Chicago.

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## *To Correlate Welding-Code Requirements*

The American Welding Society has appointed a committee to correlate the requirements of existing codes relating to tests of welding operators in order to assure the user of the integrity of the welds. The first step was to divide the code into: (1) qualification of the welding process and procedure for any group of materials and conditions, and (2) testing of the welding operator to determine his ability to properly apply the qualified process and procedure.

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## *Air Hygiene Research*

It is reported that the Air Hygiene Foundation of America, Inc., with headquarters at Thackeray Ave. and O'Hara St., Pittsburgh, Pa., has been organized by a group representing various industries to conduct investigations, and stimulate research in the field of air hygiene, and to disseminate information related to its findings. Already work has been begun at Mellon Institute of Industrial Research, Pittsburgh, under the direction of H. B. Meller, managing director of the new organization.

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## *Safety Pays Dividends at Swift Mfg. Co.*

"Notwithstanding the fact that the average rate for cotton goods manufacturing is $0.69 per $100 of payroll for workmen's compensation insurance in 1935 as compared with $0.44 at the time the Georgia Workmen's Compensation Law become effective in 1921, the compensation-insurance rate for the Swift Manufacturing Co., of Columbus, amounts to $0.352, which rate is actually 20% less than in 1921. The total difference in cost as compared with the average mill is, therefore, 76% in our favor. The allowance of substantial reductions in our compensation insurance premium cost may be attributed to the favorable accident record of our mills," asserted H. L. Williams, president of Swift Mfg. Co., in an article written for the *American Mutual Magazine.*

Explaining the reason for this excellent record, Mr. Williams stated: "A conference with the American Mutual district engineering manager disclosed

that by concentrating our efforts on the education of the individual employee in safe working practices, followed by serious supervision, making a thorough investigation of each accident, also placing the responsibility for the accident and reporting to the plant superintendent, would enable our safety committee to take the necessary steps to prevent a recurrence of the accident where it rightfully belongs, thus reducing accident probability with a resultant lower rate."

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## *Engineering Briefs*

**Nickel-Copper Alloy Line Complete**—The new corrosion-resistant nickel-copper alloy steel, recently developed by Youngstown Sheet & Tube Co., and introduced early in 1935 as Yoloy, is now available in a full line of sheets, strip, plates, pipe, bars and shapes, and wire and wire products. The high strength claimed for the new alloy is said to be due to its chemical composition rather than to special rolling or heat treatment.

**Heating and Ventilating Show**—The Fourth International Heating and Ventilating Exposition will be held Jan. 27 to 31 in the new International Amphitheater at Chicago. Heating, ventilating, and air conditioning will be the principal fields represented by exhibitors, whose products may further be classified as boilers, furnaces, hot-water heating systems, pumps, fans, blowers, unit heaters, space heaters, thermal insulation, electrical equipment, etc.

**Chain-Drive Selector**—Those who design chain drives for their equipment, or who want to install an occasional chain drive in the plant, will find the Silent Chain Drive Selector, just devised by Morse Chain Co., Ithaca, N. Y., of value. By using this sliding-scale calculator, one can select a proper chain drive within the range of ½ to 150 hp. The calculator will show the number of teeth in the sprockets, pitch and width of the chain, standard center distance, chain length, and the diameters of the sprockets.

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## *Engineering Trade News*

**Carrier Engineering Corp.**, Newark, N. J., air-conditioning equipment manufacturers, has elected Lemuel R. Boulware vice-president and general manager. Mr. Boulware, at the time of his election, was general sales manager of Easy Washing Machine Co., and prior to that, had served in various sales and executive capacities with several other companies.

**Barnes Textile Associates**, consulting engineers, Boston, Mass., have been joined as of Jan. 15, 1935, by William van D. Jewett, who resigned on the same date as vice-president of the United Merchants & Manufacturers Management Corp. Mr. Jewett has had a wide experience in silk and rayon throwing on both cotton and silk systems, and in silk, rayon, and cotton manufacturing and merchandising.

**Conway Clutch Co.**, Cincinnati, Ohio, announces that it has extended the territory of Stanley D. Berg, sales representative covering North and South Carolina, to include Virginia and some other points accessible to that district. Mr. Berg has his headquarters in Charlotte, N. C.

**Chicago Mill & Lumber Co.**, Chicago, and **Plymouth Box & Panel Co.**, Plymouth, N. C., announce the opening of a Southeastern sales office at 614 Johnston Bldg., Charlotte, N. C., with E. J. Mueller and C. P. Semmlow in charge.

**Westinghouse Electric & Mfg. Co.**, East Pittsburgh, Pa., celebrated its 50th birthday on Jan. 8, with a tremendous "family" gathering for the 12,000 employees in their Pittsburgh district and simultaneous meetings of Westinghouse employees in every important Westinghouse factory and office in the country. Specifically, the occasion celebrates the 50th anniversary of the granting of the charter to the Westinghouse Electric Co.

**Whitney Mfg. Co.**, Hartford, Conn., manufacturers of roller, silent, block, and conveyor chains and sprockets for 35 years, changed its corporate name on Jan. 1 to the **Whitney Chain & Mfg. Co.** This organization was founded in 1896 by the late Clarence E. Whitney. No change in company policy or product is involved.

**Republic Steel Corp.** has moved its Cleveland, Ohio, district sales office from the Union Trust Bldg. to 920 Republic Bldg., Dec. 30. W. E. Collier continues in charge of the office as district sales manager.

**Crane Co.**, 836 S. Michigan Ave., Chicago, has appointed H. H. Simmons advertising manager. Mr. Simmons for the last nine years has been account executive and vice-president fo Russell T. Gray, Inc., Chicago advertising agency. The Crane Co. has also established a division of research and development under direction of M. W. Link.

**Detroit Graphite Co., Detroit, Mich.**, has appointed E. C. Roberts vice-president in charge of sales, according to a recent announcement by Thurlow J. Campbell, president.

**General Refractories Co.**, Philadelphia, announces the appointment of Bird-Archer Co., of the same city, as dealer-agent in the area. Bird-Archer Co. will carry a complete stock of refractories.

**Rhode Island Chapter** of the American Society for Metals was addressed last month by D. A. Nemser on the "effects of alloying and heat treatment on the structure and properties of low-alloy constructional steels." Mr. Nemser, New England representative of International Nickel Co., Inc., makes his headquarters at Hartford, Conn.

**R. I. Humidifier & Ventilating Co.**, Boston, Mass., and Greenwood, S. C., has announced a term-payment purchase plan wherein its equipment may be installed and paid for over a period of years through an arrangement with the F.H.A. Equipment Modernization Plan.

**Cutler-Hammer, Inc.**, Milwaukee, Wis., manufacturers of electric control apparatus, announces the advancement of G. S. Crane, sales manager, and W. C. Stevens, chief engineer, to vice-presidencies in charge of sales and engineering, respectively.

**American Rolling Mill Co.**, Middletown, Ohio, sponsors of Armco Ironmaster Band broadcast, announces that the program, under the direction of Dr. Frank Simon, will be heard over the N.B.C. Blue network on Wednesdays at 8:30 p.m., E.S.T., instead of on Mondays at 10:30 p.m., effective Jan. 1.

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## *Engineering Mill News*

**Chipman-La Crosse Hosiery Mills Co.**, East Flat Rock, N. C., is installing 120 indirect Ivanhoe lighting units with a 500-watt lamp each in order to provide shadowless lighting throughout the knitting room.

**Randolph Mills**, Franklinville, N. C., have awarded contract to have their spraying equipment revamped. A new system of single units is being installed.

**Clinchfield Mfg. Co.**, Marion, N. C., has awarded Fiske-Carter Construction Co., Greenville, S. C., a contract to reroof its main building.

**Carolina Cotton & Woolen Mills Co.**, Spray, N. C., is erecting a new power plant to serve the Spray Woolen Mill and the Rhode Island Mill.

**Hanes Hosiery Mills Co.**, Winston Salem, N. C., has installed 16 Ivanhoe combination mercury vapor and incandescent lamp units. The mill is being completely relighted with an indirect system.

**Industrial Rayon Corp.**, Cleveland, Ohio, is to be given requested sewage facilities according to an ordinance passed by the City Council last month. The company will build an aeration chamber and part of the sewer at a cost of $35,000; the city will build a connecting outlet also at the cost of $35,000.

## ENGINEERING IN THIS ISSUE


| | page |
|---|---|
| Over-All Economy in Printing Machine Drives | 86 |
| Smoky Chimneys Not Only Symptom of Stack Losses | 88 |
| Worm Gear Reducer | 106 |
| Time Recorder | 106 |
| Acoustic Communication Booth | 106 |
| Photo-Electric Reflection Meter | 106 |
| Circuit Breaker | 107 |
| Metal-clad Switch Gear | 107 |
| Conduit Grounding Items | 107 |
| Stainless Steel Welding Rod | 107 |

ADVERTISING PAGES REMOVED

# Business News

**E. F. Houghton & Co.**, Philadelphia, announce that Dr. Eugene R. Manning has joined the research staff of the company as textile consultant. Dr. Manning for the last three years has been head of the Department of Textile Chemistry and Engineering at Clemson College.

**Veeder Root, Inc.**, Hartford, Conn., paid an extra dividend of $2 per share to stockholders of record Nov. 16, bringing total payments for 1935 to $4 per share, compared with $2 in 1934.

**James Talcott, Inc.**, one of the industry's oldest factoring concerns, has called a special meeting of stockholders to approve an increase in the capital stock of the corporation from $3,500,000 to $6,000,000.

**Commercial Factors Corp.**, New York, announces that Konrad F. Braun, vice-president, has been made assistant to the president, and Andrew W. Hamilton who has been assistant credit manager, has been appointed to full charge of credits.

**Merrimack Chemical Co.**, Everett, Mass., a subsidiary of Monsanto Chemical Co., has elected William M. Rand as president. He succeeds Charles Belknap, who recently moved to St. Louis, headquarters of the parent company, as executive vice-president.

**Onyx Oil & Chemical Co.**, Jersey City, N. J., brought to a close its twenty-fifth year in business, with a gala Silver Anniversary banquet, held on Dec. 28, 1935, at the Hotel Edison, New York. Featuring the evening, was the presentation of handsome sterling silver plaques to the co-founders of the company, Victor H. Berman and Richard Von Oesen, by Dr. Philip Kaplan, chief chemist, as expressions of esteem from the workers, all of whom contributed to the cost. James H. Tully, vice-president was toastmaster. Presentations were made for long and meritorious service to Elgar A. Brick, in honor of 25 years of service; to Dr. Philip Kaplan also for 25 years and to William Farley for 20 years. Awards to winners in the sales contest were made by Charles D. Ehrengart, secretary and sales manager. First prize was won by Edward Klumph, southern representative; second prize by Jack Tresize, New York and New England representative; first prize in the Midwestern area, by Paul Wilgeroth, of the Maher Color & Chemical Co., Inc.; first prize in a special effort contest, by Leon P. Brick, Middle Atlantic States representative.

**Hurley-Johnson Corp.**, Providence, R. I., branch, suffered damage from water when fire swept the upper floors of the building at 15 Pine St. last month.

**Toledo Synthetic Products, Inc.**, makers of Plaskon, colorful urea molding material, announces a change in name effective Jan. 1, 1936. The new name of the company is **Plaskon Co., Inc.**

**B. S. Roy & Son Co., of** Worcester, Mass., manufacturers of textile grinding machinery, recently opened a Southern branch office at 21 Byrd Boulevard, Greenville, S. C.

**Warwick Chemical Co.**, West Warwick, R. I., announces an increase in its southern sales force and a division of the territory. W. E. H. Searcy, 3rd., who has been covering the entire territory, is now concentrating his efforts in Georgia, Alabama and a part of South Carolina, with headquarters at Griffin, Ga. Earl H. Walker, formerly with Solvay Sales Corp., will cover part of South Carolina, North Carolina, Virginia and Tennessee, with headquarters at Concord, N. C.

**General Electric Co.** announces that J. E. N. Hume, assistant manager of G. E. industrial department for the last six years, has been appointed manager of the department, succeeding the late W. W. Miller. George H. Reid has been appointed industrial department manager of the company's New York district, succeeding Fred S. Hartman, retired after 25 years service.

**Borne Scrymser Co.**, New York, has lately received orders for its improved mineral spraying equipment for conditioning cotton, from the following mills: Lane Cotton Mills, New Orleans, La.; Spencer Mills, Spindale, N. C.; Cleghorn Mills, Rutherfordton, N. C.; Amazon Cotton Mills, Thomasville, N. C. The company has also received orders from Moscow, U.S.S.R., and Ahmedabad, India, for its cotton conditioning equipment and is also expecting to place its equipment in textile mills in Czechoslovakia and Hungary.

# New Publications

**Wages and Labor in Cotton Spinning**; by John Jewkes and E. M. Gray; Manchester University Press, Manchester, England; 222 pages; Price 8/6.

This valuable contribution to textile literature is a report of an investigation financed jointly by the University of Manchester and the Rockefeller Foundation. Primarily, the aim has been to investigate the organization of the spinning branch of the industry with special reference to the conditions of employment of the main classes of labor and the systems of their remuneration. These symptoms have long been noted for their complexity, and one outstanding feature of the investigation is that the bases and methods of operation of the "lists" are so clearly explained in the report that even the uninitiated will be able easily to understand them. But the large significance of the investigation is the light it throws on the internal relations of one branch of the cotton industry, and of the indications it gives of its internal strength or weakness for coping with such problems as it now faces and will certainly continue to face in the future. It is of vital interest to cotton manufacturers on this side as well as in England itself.

**A Stone Came Rolling**: by Fielding Burke; Longmans, Green & Co., New York; $2.50.

This is a new novel of the southern textile manufacturing industry by the author of "Call Home the Heart." Like its predecessor, it reflects a background of living in that section; a sympathetic interest in and love for its people; and a passionate espousal of the cause of the worker. Miss Burke is frankly and openly a propagandist, but she is also a novelist of first rank. Obviously, her viewpoint will not be shared by those identified with the textile industry, but to any who are not afraid to read the other point of view, and who in fact are anxious to know what others say about their industry and its social implications, this book will be on the "must" list.

**Cotton Year Book of the New York Cotton Exchange, 1935**; Published by New York Cotton Exchange.

This is the eighth Year Book issued by the New York Cotton Exchange. It contains practically all the series of statistics in the seventh Year Book, these extended to cover the 1934-35 season, and considerable additional data. In the tables in this volume will be found data on those fundamental phases of the world cotton trade which, together, exercise the major influence in the determination of market values of American and foreign cottons. It was compiled under the direction of Alston H. Garside, economist of the Exchange, in collaboration with the Committee of the Exchange on Information and Statistics.

**Procedure Handbook of Arc Welding Design and Practice**; Lincoln Electric Co., Cleveland, Ohio; $1.50.

Revised edition of arc-welding handbook containing 586 pages—140 more than the preceding issue. The text covers practically every use and application of arc welding, and is illustrated with over 700 detailed drawings and photographs. New features include specifications, methods and much reference material.

The handbook, written especially for engineers, designers, operators, etc., is divided into eight sections covering (1) methods and equipment, (2) technique, (3) procedures, speeds and costs for welding mild steel, (4) structure and properties of weld metal, (5) weldability of metals, (6) designing for arc-welded steel construction of machinery, (7) designing for arc-welded structures, and (8) typical applications of arc welding in manufacturing, construction and maintenance.

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## *Clothing In 2054*

Men and women of 100 years from now will dress "neither as Adamites nor angels," says H. G. Wells in his new book "Things To Come" (Macmillan Co., New York), in which he describes in amazing detail the daily life and living conditions of the year 2054.

"You will not see people rushing about in a monstrous rig, all goggles and padding and gadgets like the earlier aviators," says Mr. Wells. "Men and women of the future will carry the equivalents of the purse, pocket book, fountain pen, watch, etc., etc., of today in a graceful decorative scheme. In the future various light apparatus such as a portable radio, electric torch, notebook, will have to be carried on the person and this will probably necessitate a widening of those broadly padded shoulders which are already necessary in the costume of contemporary men because of their wallets and fountain pens. I anticipate a costume, broad on the shoulders and fine about the legs and feet, with a fairly simple coiffure, more reminiscent of 'Tudor' style than anything else the world has seen.

"Clothing will have a *style*, but within the limits of that style it will be very varied. Some women, especially the younger and shapelier, will dress like youths, but there are invincible aesthetic reasons why a certain number of them should have considerable skirts. In a clean indoor city, there will be no hygienic objections to quite long skirts. And the broad shoulders that will rule masculine and (either by contrast or imitation) femine costume, call aloud for cloaks, the most dramatic of garments."

## *A Prevue of Textiles On the "Queen Mary"*

Various features of interest to the textile industry are included in the furnishings of the new Cunard steamship, "Queen Mary" now nearing completion. Steamship line officials state that the main ballroom floor of the steamer when not used for dancing will be covered with rugs shaped like huge leaves and colored in autumn tints. Rose-pink upholstery on the "C" deck restaurant chairs is another novelty. The fabrics selected for de luxe staterooms have been specially designed to harmonize with the rare woods used for walls and floors. A notable departure in the 54 special staterooms on the main and "A" decks is the general use of python, pigskin and other leathers as wall coverings. The color scheme of the ship's textiles as a whole tends to the conservative; there is a marked leaning toward browns, golds and variations of blue.

## *"Golden Wedding" Color in Textiles*

As part of the plan to promote the "Golden Wedding" color in textiles, labels are being issued to firms who are including this shade in their new lines. The labels are issued by Golden Wedding Headquarters in New York; textile firms now promoting "Golden Wedding" in their fabrics include: Botany Worsted Mills, Stehli Silks, Inc., Belding Hemingway Corticelli Co., Wager & Hirsch, Celanese Co. of America, A. Wimpfheimer & Bro., Inc., and N. Erlanger Blumgart "Everfast."

*(Other "Industry Wide Items" are to be found on page 105)*